

Mobilities at the edge: splintering urbanism and transport-related social exclusion in Soacha, Colombia, 2000-2013

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I, Daniel Ricardo Oviedo Hernandez, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

A handwritten signature in dark ink, appearing to read "Daniel Ricardo Oviedo Hernandez".

DANIEL RICARDO OVIEDO HERNANDEZ

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Abstract:

The research sets out to identify the effects of an uneven provision of transport infrastructures and services on social and spatial marginalization. Using the case study of Soacha, a municipality adjacent to Bogotá, Colombia's capital city, I explore the underlying causes of fragmentation in the provision of infrastructure and services for transport to socially and spatially peripheral populations in the area known locally as Cazucá. Through the analysis of planning and regulatory documents and interviews with civil servants and community leaders, the research links the political, administrative and social structures of Colombia's capital region with the structure of transport supply and demand in Soacha.

Building on primary qualitative information and secondary quantitative data, I investigate travel practices and strategies of the peripheral poor and their response to social and transport-related disadvantages. Travel practices, perceptions and priorities of low-income populations in a set of deprived neighbourhoods in Soacha are analysed under a framework of transport-related social exclusion, critically examining the elements that play a role in allowing residents to gain access to the city. I explore and deconstruct definitions of social exclusion, reframing the operationalisation of the concept in seven dimensions that span physical, geographic, economic, social and personal conditions of deprivation and vulnerability. The research finds that different transport and non-transport-related variables play a significant role in travel practices, highlighting differences in relation

to income, gender, position in the household, and physical location and conditions of the built environment. It documents the emergence of adaptable methods, relations, and strategies between demand and supply that allow deprived populations to reduce the risk of becoming socially excluded. The research seeks to contribute to a more socially-informed analysis of the dynamics of transport-related social exclusion, aiming to complement current theory and practice related to transport and urban planning in marginalised areas.

*To Yiya, my love,
to my parents, Orlando and Martha,
and to aunt Cleotilde, who could never leave Cazucá*

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Acronyms & abbreviations

A	Academic
AI	Academic Institution
AIDS	Acquired Immune Deficiency Syndrome
BC	Before Christ
BRT	Bus Rapid Transit
CAF	Development Bank of Latin America
CBA	Cost-Benefit Analysis
CBD	Central Business District
CCB	Cámara De Comercio de Bogotá
CNSC	Comisión Nacional del Servicio Civil
COP	Colombian Pesos
CS	Civil Servant
DAFP	Administrative Department for the Public Function
DANE	Departamento Administrativo Nacional de Estadística
DATT	Department of Public Transport and Transport
DC	Capital District
DCT	District's Company of Transport
DNP	Departamento Nacional de Planeación
DPS	National Department for Social Prosperity
ECLAC	Economic Commission for Latin America and The Caribbean
EDTU	District Company for Urban Transport
ELN	Ejército de Liberación Nacional
FARC	Fuerzas Armadas Revolucionarias de Colombia
GDP	Gross Domestic Product
GIS	Geographical Information System
HDI	Human Development Index
ICBF	National Institute of Household Wellbeing
IDB	Inter-American Development Bank
IDMC	Internal Displacement Monitoring Centre
IDP	Internally Displaced People
IDU	Instituto De Desarrollo Urbano
ISI	Import Substitution Industrialisation
ITDP	Institute for Transportation and Development Policy
JAL	Local Administrative Boards
JICA	Japan International Cooperation Agency
LL	Local Leader
LOOT	Ley Orgánica de Ordenamiento Territorial
LRT	Light Rail Transit
MA	Metropolitan Area
MA	Municipal Authority
MEN	National Ministry of Education

MIALC	Internal Migration in Latin America and The Caribbean
MPI	Multidimensional Poverty Index
NGO	Non-Governmental Organisation
NUPT	National Urban Transport Policy
PC	Private Company
PE	Private Employee
PMD	Municipal Development Plan
POT	Plan de Ordenamiento Territorial
QCA	Qualitative Content Analysis
RAPE	Special Administrative Planning Region
RCN	Radio Cadena Nacional
RUT	Random Utility Theory
SDP	Secretaría Distrital de Planeación
	Sistema De Identificación de Beneficiarios de
SISBEN	Programas Sociales Nacionales
SITP	Integrated Public Transport System
STT	Public Transport and Transport Secretariat
SU	Splintering Urbanism
SUR	Urban and Regional Research Group
TM	Transmilenio
	United Nations Commission for Regional Development -
UNCRD-IDB	Inter-American Development Bank
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UN-HABITAT	United Nations Habitat
UNHCR	United Nations High Commission for Refugees
UTP	Urban Transport Planning Process

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1. Introduction

From the beginning of history, transport has played a vital role in human development. Trade (and the implicitly associated evolution of transport) has shaped the world since as early as 3000 BC (Bernstein, 2008). Development of roads and trade routes through land and sea and the innovations that followed in mechanized transport have redefined distances and allowed economic, social and cultural exchanges between societies. Accounts of most events in human history have either an implicit or explicit transport dimension as it plays an enabling role in most human activities. Transport is intimately connected to the way people engage with geographies and constantly re-defines their meaning in our lives (Gauthier, 1970). However, as enabling agent for human activities, the demand for transport derives from the need of people to access opportunities and interactions not available at their location. Transport demand is a function of the desire and capacity of individuals to perform a given activity, which makes the availability of transport and the conditions to make use of it determinants on whether an activity can or cannot take place (Cervero, 2005; Ortuzar & Willumsen, 2011). The above argument is arguably a straightforward explanation for the rapid development of transport: it is a mechanism to fulfil our needs. More importantly, history has proved that availability of better or worse transport can enhance or limit the development and sustainability of any given society (Mallon, 1960; Banister & Berechman, 2003; MacKinnon, Shaw, & Docherty, 2008).

While this may strike the reader as a short and over-simplified argumentation of the relevance of transport in human development, it is a starting point to understand transport's place in modern debates concerning development and planning. Transport enables human activity and helps extend its reach and scale. It allows movement of populations between settlements and the connectivity between economic production centres, contributing to demographic, social, cultural, technological, and environmental processes that result in urbanisation (Knox, 2009). However,

transport can also become a differentiating factor in the capacity of different individuals and social groups to participate in the activities and opportunities available in contemporary societies, producing inequalities. In cities, transport is a complex system that involves infrastructure, open and closed spaces, institutions and technology that enable flows of goods and people that interact as part of a single functional entity (Loo, 2009). The mutual relations and exchanges between components of urban transport determine the effectiveness and sustainability of such systems in a context of high concentration of human activities within a limited space (Loo, 2009). The interrelation between these elements creates dependency on the transport system from urban societies, which reinforces the role of transport as either an enabling or a hindering factor of human activity, depending on the specific conditions of places, individuals and transport itself. In practice, the interrelation between those locations, individuals and transport translates into policy, planning and individual and collective decisions that seek to reinforce transport's positive contributions to human development (Hickman et al., 2015).

1.1 What is this research about?

This research seeks to explore the role of transport as both enabler and/or hinderer of the participation in the normal activities of urban society in the Global South under specific spatial, social and economic conditions. I use the case of Soacha, a municipality adjacent to Bogotá, Colombia's capital city, to explore the underlying causes of fragmentation in the provision of urban infrastructure and services for transport to what I identify as socially and spatially peripheral populations, and the social consequences fragmented transport has on such peripheral populations. The thesis aims at contributing, both theoretically and empirically, to current debates regarding the role of transport in social development and exclusion in cities of the Global South.

On the one hand, I approach the issue of fragmentation in the provision of urban infrastructure and services for transport from the perspective of Splintering Urbanism (Graham & Marvin, 2001). This is defined as the differentiated provision of infrastructure (which I extend to public transport services) to social groups depending on their power, wealth and influence. According to Graham and Marvin (2001), such patterns of provision of infrastructure and networks of transport and communications tend to produce 'premium networked spaces' for the wealthy while bypassing less-powerful groups (Graham & Marvin, 2001). In this process of production and reproduction of urban spaces, certain social groups and geographic areas experience "poverty of connections" (Ohnmacht, Maksim, & Bergman, 2009, p. 31). Such poverty of connections is a result of continuous improvement of connectivity of central areas, while less profitable areas and groups "tend to get increasingly disconnected, (being) bypassed by infrastructure and socio-cultural investment". I explore the issues of fragmented provision both in relation of the physical infrastructure and transport networks, and in relation to the potential fragmentations present in urban and metropolitan governance and planning. Further conceptual and empirical analysis of Splintering Urbanism is developed in Chapter 7.

On the other hand, I explore the social consequences of a fragmented provision of transport using a framework of transport-related social exclusion. The term social exclusion refers to the co-existence of a set of social problems associated with the fragmentation of traditional social structures, the decline in participation in normal processes of society, as well as increasing deprivation among particular social groups (Burchardt, 1999; Witter, 2010). An individual is socially excluded when he or she resides geographically in a society but cannot be involved in its normal activities (Witter, 2010). In this regard, transport-related social exclusion is defined as the process by which, due to an insufficiency or lack of adequate means of travel, people are prevented from participating in the economic, political and social life of the community (Kenyon, Lyons, & Rafferty, 2002).

This represents a complex concept that involves several dimensions such as economic, spatial, political, societal, personal, and temporal disadvantages, which can be exacerbated by poverty (Church, Frost, & Sullivan, 2000). This concept will be further explored, both theoretically and empirically in Chapters 2 and 8, respectively.

Soacha and Bogotá form a strong functional and physical conurbation fragmented by invisible boundaries and jurisdictions that frame the analysis of urban transport planning and development. In the context of the Bogotá-Soacha conurbation, the study of transport-related social exclusion focuses on the area of Altos de Cazucá, from now onwards addressed only as Cazucá, a set of informal neighbourhoods in the periphery of both Soacha and Bogotá. Cazucá is an example of peripheral informal settlements in the outskirts of a large metropolis such as is found elsewhere in Latin America and other regions in the Global South. Such peripheral settlements endure conditions of social and spatial segregation, poverty, crime, violence, and reduced access to urban services and amenities. Given the complex social, geographic and urban conditions in Cazucá, which will be introduced in detail in Chapters 3 and 4, this thesis builds on empirical evidence from qualitative fieldwork to rigorously examine and understand transport and social-exclusion-related dynamics in urban peripheral settlements. The period of analysis of this research spans between 2000 and 2013. However, interviews were carried out between 2012 and 2013, reflecting mainly the reality at that point in time. The analysis of information back to 2000 is based primarily on existing documents and some retrospective insights from key informants.

1.1. Social research on transport in Soacha: Justification and positioning

Bosco and Moreno (2009) have argued that most social science research involving fieldwork, particularly in human geography, need to acknowledge the subjectivity of social inquiry. Social research in transport, especially in

a context such as Cazucá, is not free from such subjectivity. In fact, as England (1994) argues, social research is informed by the researcher's positionality and biography, leading field inquiry to become a dialogical process structured by both the researcher and the participants.

A researcher's positioning is determined, among others, by individual characteristics such as gender, race, affiliation, age, personal experiences, linguistic tradition, beliefs, biases, preferences, theoretical, political and ideological stances (Berger, 2015). This positioning can have an influence both on the research process as well as on the way in which information is interpreted and knowledge is produced and communicated (ibid). Research traditions in the social sciences value research objectivity as a result of the separation on the intellectual project from its process of production. Although it is expected not to confound the process of discovery with that of justification of research (Burawoy, 1991), modern social research acknowledges that the academic process is not only analytical, technical, reflexive, and interpretive in nature, but it also has a social, relational, political, and emotional dimension (Bosco & Moreno, 2009). My beliefs and ideological stances in relation to the need to reduce social inequalities and segregation of populations in poverty have led me to explore the social dimension of urban transport. Previous professional experience and family links with Cazucá also contributed to the selection of it and Soacha as research settings. In this regard, this thesis is as much an academic project as it is a personal one. On the one hand, as a citizen of Bogotá, I have closely observed and to some extent experienced the spatial and social inequalities in Bogotá and the visible poverty and segregation in Soacha and Cazucá. On the other hand, as an academic and practitioner working on urban transport, I seek to understand how transport can contribute to the production and reproduction of poverty and social inequities and to devise new knowledge that can inform more just and socially inclusive urban and transport development. This positioning, motivations, as well as other ethical considerations of the research will be outlined in more detail in Chapter 4.

1.2. Locating the research in urban debates: Transport, urbanisation and development

1.2.1. Global urbanisation in perspective

Urbanisation can be defined, from a demographic perspective, as the relative concentration of population in the urban areas of a specific territory or as the increase rate of the proportion of urban populations over time (Knox, 2009). This research adopts the demographic perspective for addressing urbanisation. Other research associates urbanisation with land use, economic activity, or culture becoming more urban, often assuming that such transitions towards an urban society take place simultaneously (McGranahan, 2015). However, as argued by Brenner and Schmid (2014) these processes are not necessarily interconnected, and the implications of the demographic increase in urban population can differ considerably from land use, economic activity or cultural norms becoming more urban. Urban transport can contribute differently to each of these dimensions of urbanisation, allowing the expansion of urban areas, influencing both increases in urban densities in proximity to high capacity public transport, opening better access to suburban land, and/or consolidating areas of economic and cultural activity (Loo, 2009).

At a global scale, according to McGranahan (2015), we are currently at a point where rates of both population growth and urbanization, defined from a demographic perspective, have been in continuous decline. Estimates from global statistics compiled by the United Nations suggest that, contrary to popular belief, Sub-Saharan Africa is not the fastest urbanizing region now, nor has it been in history, which puts in perspective claims regarding disproportionate urban population growth in Latin America and other developing regions. Since the 1950s, average world urban growth rates have been declining, and the rates for most of the Global South have followed the same trend since the 1970s (United Nations Population Division, 2014). Global urbanization rates and urban growth rates are predicted to decline further.

Despite these figures, the absolute increase in urban populations each year during recent years is unprecedented. Although growth rates have decreased, the estimated rise in the number of urban residents in the world has peaked at approximately 80 million people a year. According to projections from the United Nations Population Division (2014), between 2010 and 2050 the largest number of additional urban population will concentrate in the Global South (1,140 million in Asia, 940 million in Africa, and 448 million in Latin America and the Caribbean).

As shown in Figure 1.1, Latin America is already primarily urban, with higher percentages of urban population in countries such as Brazil, Argentina and Chile. Although the percentage of urban population is lower on average in countries like Colombia and Peru, these are still above 60%. Considering the expected increase in urban population in Latin America, the region will face considerable challenges for accommodating its increasingly urban societies efficiently and equitably (McGranahan, 2015).

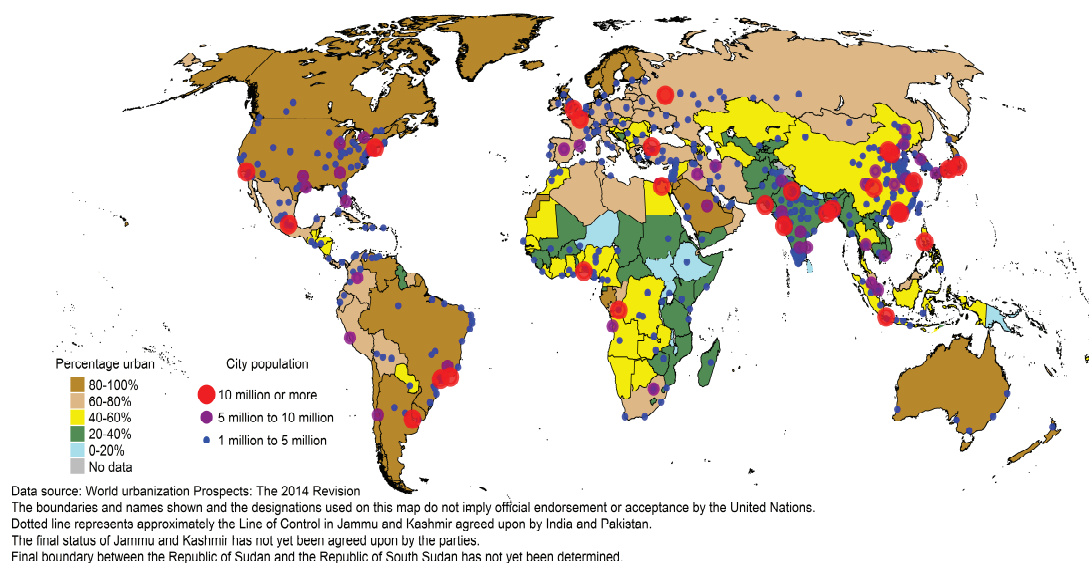


Figure 1.1 Percentage of urban population and urban agglomeration by size class, 2013

Source: United Nations Population Division, 2014

1.2.2. Urbanisation, economic development and transport in Latin America

As shown in Figure 1.1, the population of Latin America has become predominantly urban in recent years despite wide differences in the number of people living in cities between countries (from 3.25 million people in Uruguay, 37.2 million in Colombia, to 172 million in Brazil) (United Nations Population Division, 2014). At present, the share of urban population ranges between 65% (i.e. Paraguay, Ecuador and Bolivia) and more than 90% (Venezuela, Uruguay and Argentina) (ibid). Such urban population is estimated to grow from about 341 million inhabitants in 2013 to about 448 million in 2050 (United Nations Population Division, 2014). Likewise, it is projected that by 2025 84% of the population in the region will live in cities (McKinsey Global Institute, 2011).

Economic growth goes hand in hand with urbanisation in the region. Data from ECLAC (2012) shows that annual GDP growth of South America and Mexico between 2006 and 2010 was 4.4%, with countries such as Uruguay, Peru and Argentina growing at rates above 6.5% per annum, and countries like Chile and Brazil growing at 5.3% per annum. Urban economies play a very important role in the economic growth of Latin America. There are currently 198 cities with a population over 200,000 that contribute with approximately 60% of the region's GDP (McKinsey, 2011). Also, larger cities (Sao Paulo, Mexico City, Buenos Aires, Rio de Janeiro, Lima, Bogotá, Santiago, Monterrey and Brasilia) contribute with nearly 30% of the economic output in the region (ibid).

Sen (1999), defines economic development as the strengthening of economic performance beyond economic growth through the reinforcement of autonomy and substantive freedoms that allow individuals to fully participate in economic life. Economic development takes place when individuals can develop the capacities that enable them to participate in and contribute to the economy, which attaches great relevance to social policy

(Roemer, 2014). Economic development leads to a decrease in transaction costs and an increase in social mobility. This implies that a central outcome of economic development, aside from GDP growth, is the reduction of poverty and the transition of the population between social classes and income levels. In Latin America, recent economic development has had visible effects in the redistribution of socioeconomic classes in the region. Data from UNDP (2015) reveals that since 2003 over 72 million people in the region have transitioned out of poverty and nearly 94 million have joined the middle class.

There is a strong correlation between urbanization, per capita income and motorization (Vasconcellos, 2001), which links economic development and its associated increases in purchasing power to the rise of individual mobility and motorization rates. However, increased mobility and motorization are not unlimited. Metz (2013) shows from figures of increases in per capita GDP and individual mobility rates and motorization in the UK that the number of trips, travel time, and even average distances have tended to remain almost constant between 2000 and 2010. Abundant evidence from industrialized countries shows that something similar happens with motorization rates, reaching peaks in ownership of private vehicles that remain constant despite further increases in purchasing power (Lucas & Jones, 2009; Metz, 2010; Millard-Ball & Schipper, 2011; Gargett, 2012; Kuhnimhof et al., 2012; Le Vine & Jones, 2012). Rates of around 600 vehicles per 1,000 inhabitants are among the highest values recorded in these contexts (Schipper et al., 2010).

Gómez and Acevedo (2013) argue that car and motorcycle ownership rates in Latin America can be largely explained by income and population distribution. With the rise of the middle classes and the transition from low to middle income levels there is an expected increase in both automobiles and motorcycles in cities of the region. Nonetheless, motorization rates in Latin America are still low compared to industrialized countries. The number of cars per 1,000 inhabitants varies from 55 in Ecuador, to 185

vehicles in Mexico (UNCRD-IDB, 2011). Countries in the lowest range of motorization rates such as Peru and Bolivia are between 51 and 56 cars per 1,000 inhabitants, while the same figures in Venezuela, Chile and Argentina are between 135 and 165 cars/1,000 inhabitants. Evolution of the personal vehicles industry have led to increasingly affordable cars and motorcycles. The latter in particular has a much lower income threshold for purchasing and daily operation, which has led to a rapid growth in motorcycle ownership (Gómez & Acevedo, 2013). In Uruguay, the number of motorcycles per 1,000 inhabitants reaches 141 vehicles, while in Brazil and Colombia this figure is 81 and 68 respectively (Hidalgo & Huizenga, 2013). These figures show a tendency to increase in the following years as a result of economic growth and a reduction of the price of vehicles being distributed. The number of motorcycles in Brazil increased by 38% annually between 2000 and 2010 while in Colombia and Mexico growth rates have been between 14.7% and 16.4% per year respectively. On average, cars have increased by about 6% annually in the region (Hidalgo & Huizenga, 2013; UNCRD-IDB, 2011).

This increase in rates of motorization has consequences on environmental sustainability as a result of externalities such as congestion and air and noise pollution. However, evidence gathered by the CAF Urban Mobility Observatory (Vasconcellos, 2010) shows that, in most cities, rates of usage of private vehicles (cars and motorcycles), are still relatively low. In cities like La Paz, Rio de Janeiro and Montevideo, less than 20% of daily trips are made by private vehicles. In other cities, such as Bogotá, Belo Horizonte, Porto Alegre, Santiago, Caracas and Guadalajara, this percentage is still below 30%. These figures contrast with increasing percentages of journeys made by public transport and non-motorized modes. In Rio de Janeiro, Belo Horizonte, Santiago, León, Guadalajara and Curitiba, non-motorized travel represents between 32% and 42% of daily trips. In all cities this is complemented by at least 40% of trips being completed by public transport (Hidalgo & Huizenga, 2013).

Evidence indicates that Investment in public transport infrastructure in Latin America, in particular BRT systems has increased rapidly. According to data from BRTData (2016), 68 cities in the region have developed BRT systems that add to up to 1,900 km in 2000. In addition, by 2011, 327 cities had exclusive lanes for bicycles (85% of them in Brazil) (UNCRD-IDB, 2011). Availability of infrastructure by type of transport mode shows an increasing effort by national and local governments in Latin America to increase supply of public transport and to provide better conditions for non-motorised travel, although the latter is much more limited. The availability of mass transit networks varies between 2.2 (Peru) and 41.6 km (Chile) per million urban dwellers. Colombia has the longest network of Bus Rapid Transit -BRT-¹ in the region with 386 km and it also has one of the largest number of km of cycle lanes in the region, which borders the 600 km only between its two largest cities (Bogotá and Medellín). This contrasts with the availability of cycle lanes in other countries, which range from 2 km (Mexico) and 15 km (Brazil) per million urban dwellers (Hidalgo & Huizenga, 2013).

These conditions pose a significant challenge for transport planning and policy in cities of Latin America from an equity perspective. However, before introducing such challenges, it is first necessary to address the concept of equity, along with other relevant concepts for the research such as social disadvantage and poverty.

¹ Bus Rapid Transit can be defined as "...a high-quality bus based transit system that delivers fast, comfortable, and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and excellence in marketing and customer service. BRT essentially emulates the performance and amenity characteristics of a modern rail-based transit system but at a fraction of the cost. A BRT system will typically cost four to 20 times less than a light rail transit (LRT) system and 10 to 100 times less than a metro system." (Wright & Hook, 2007, p. 11).

1.2.3. Defining equity, equality and social disadvantage

The concept of equity reflects a concern to reduce systematic discrimination and marginalisation, and it is sometimes described as the absence of systemic inequalities between different social groups (Wiles & Kobayashi, 2009). Examples of systemic inequalities include differences in areas such as health outcomes and healthcare, access to employment and employment outcomes, healthcare, education and social support, and safety from crime and environmental hazards, among others. Transport can play a differentiating role in each of these different areas as it will be argued later on this chapter.

The concept of equity is closely related to that of (in)equality, which can itself have multiple interpretations. Arithmetically, inequality involves people receiving disproportionately less quantity of some attribute within a certain distribution. From a social science point of view, this initial definition of imbalances in the distribution of something has a moral and normative dimension (DeVerteuil, 2009). Under this line of interpretation, inequality refers to observable arithmetical imbalances based on personal attributes of members of a given group (Smith, 1987). Such imbalances are the reflection of levels of discrimination towards some groups that become disproportionately better or worse off than others in relation to elements of social advantage/disadvantage such as income, wealth, opportunities or health.

According to DeVerteuil (2009), the spirit of this moral dimension of inequality is encompassed in the concept of equity. The two concepts (equity and (in)equality) can then overlap at times, as some distributions can be unjust and unequal, such as an uneven distribution of wealth, while others can be equal but not equitable, such as a uniform distribution of resources despite higher needs of specific social groups within a given society. Inequality can be expressed in different dimensions and spheres of urban life, which makes it useful for the purposes of this research. A particular advantage of the concept of inequality is that it can be

approached from an economic, social, and, more recently, a spatial perspective (Manderscheid & Bergman, 2008; DeVerteuil, 2009; Adama, 2012).

From an equity perspective, structural inequalities are determined in relation to varying levels of social advantage or disadvantage of social groups (Sanchez, Stolz, & Ma, 2003; Wiles & Kobayashi, 2009; Rice & Hancock, 2016). Equity, inequality, and social disadvantage are relevant for this research as they can help frame conceptually the particular conditions of the population of Soacha and Cazucá in relative and absolute terms. As argued by Gleeson and Randolph (2002), social disadvantage is a multidimensional construct that arises from a variety of causes that have social and spatial manifestations, and refers to the combination of social characteristics and conditions that may impair the ability of people to participate in social and economic life. Social groups that may be socially disadvantaged include, among others, poor populations, women, people with disabilities, ethnic minorities, or even people belonging to some cultural, religious or age group depending on the context. Arguably, there is an overlapping between social disadvantage and social exclusion. However, while the first focuses on the individual factors that may place individuals at a disadvantaged position, the second has a normative dimension that governs the definition of disadvantages and its consequences, placing more focus on the processes by which people at social disadvantage are prevented from normal participation in social life and on the consequences of such exclusion.

There is an implicit ethical principle of equity, which involves giving selective priority to improve the conditions of socially disadvantaged groups in society in search for a more just distribution of the benefits of society. This may involve redistributing or reassigning resources and other processes that might result in structural inequalities (Wiles & Kobayashi, 2009). For the purposes of this research, the term inequality is referred to from a moral dimension in relation to social, economic and spatial

imbalances relevant to transport. Conversely, the research will approach equity in relation to different levels of disadvantage, exploring the implications of the processes of distribution that lead to structural inequalities.

1.2.4. Poverty as a factor of social disadvantage

As argued earlier, poor populations are one of the categories of socially disadvantaged groups. Conditions of poverty, which are defined in this section for the purposes of the thesis, are however not independent from other factors of disadvantage (i.e. poor women, poor individuals with physical or cognitive impairments, poor people from discriminated ethnic groups), becoming a central concept in socially-centred urban studies.

Multiple approaches to poverty can be identified from the international literature (Chimhowu, 2009; Smeeding, 2015). The concept of poverty has suffered major shifts in its interpretation over the past decades from the major milestone of the World Development Report of 1990 (World Bank, 1990). The publication of this report marked the transition from a narrow traditional income-based definition of poverty to a more comprehensive interpretation that included needs related to inadequate or inexistent access to education, health services, and sustenance (van Lindert, 2015). Early narrow definitions limited the understanding of poverty to insufficiency of income or related expenditure. Early studies were focused on social policy, such as the work of Charles Booth mapping poverty in London, and that of Seebohm Rowntree on York in the 19th century (Rowntree, 1901; Booth, 1903), which among other studies, established an “early trend to focus on income what has variously been termed ‘primary’ or ‘subsistence’ poverty – what contemporary discourse generally calls ‘absolute’ poverty” (Chimhowu, 2009, p. 408). Such early works and the following trend of the study of income-based poverty conceptualise poverty as the lack of sufficient income to carry out productive and reproductive roles. In this regard, sufficiency of income is measured in terms of income thresholds, such as the poverty lines referenced in section 1.3.2, which can be used to

identify households that might qualify for social welfare assistance programmes.

More recent evolution of the concept of poverty led to its distinction in absolute and relative terms (Dasgupta, Sen, & Starrett, 1973; Sen, 1976; Townsend, 1979, 1987; Chimhowu, 2009). As explained by Chimhowu (2009), while absolute poverty is an indicator of the number of people below an officially determined poverty line, relative poverty is defined in relation to the average income of a given country. Absolute poverty is perhaps the most used approach from international agencies and governments, referring to a minimum level of securement of subsistence, basic housing conditions and services, relative poverty accounts for the extent of inequality within society and its continuously changing condition. Wratten (1995) argues that relative poverty provides more flexibility and allows to revise minimum needs as standards of living in society change. In addition, while the threshold of absolute poverty is often independent of time, relative poverty thresholds are largely context and time-specific.

Since the 1990s the interpretation of poverty has evolved further, incorporating new dimensions beyond income. A significant first breakthrough in the development debate conceived beyond income was the first Human Development Report of 1990 (UNDP, 1990). Since then, demand for measurement and multidimensional development policies has gained global strength and importance with the publication of the report by Stiglitz, Sen, and Fitoussi (2009) on the economic and social progress, and the definition of the current Agenda for Sustainable Development for 2030 agreed in September 2015 at the General Assembly of the United Nations (van Lindert, 2015).

The human development approach (Sen, 1992, 2000; Anand & Sen, 2000; Alkire, 2002), which differs from economic development by incorporating the concepts of functionings and capabilities, argues that the space of human development is framed by the interaction between the functionings "being" and "doing" of a person (i.e. living a healthy life, participating in

community responsibilities, or having a productive work) and the capabilities required to carry out such functionings (Sen, 1992). The relationship between capabilities and functionings provides ample space for freedom, which responds to the pluralism that defines the possible ways of living developed by every person in every context (Alkire, 2015). From a human development perspective, poverty is interpreted as the insufficiency of the capabilities and conditions for performing essential functionings.

In recent years, measurement and conceptualization of poverty and welfare beyond income have gained momentum in Latin America and the Caribbean. The development of the Multidimensional Poverty Index (MPI) led to conceive more demanding goals and to consider adopting dimensions that go beyond traditional poverty lines (Alkire & Foster, 2011). Several countries in the region have innovated in this field by incorporating dimensions beyond income that are valued for their societies and which are measured according to their respective levels of development.

The MPI can capture acute poverty through the dimensions of standards of living, education and health, and generates an important point of comparison with income poverty lines (UNDP, 2010). From this perspective, a household is defined as multidimensionally poor if it presents deficits in at least three of the ten indicators considered for measurement of such dimensions. The MPI has the advantage of being decomposable both dimensionally (in any of the ten indicators of deprivation) and in relation to incidence or intensity (to estimate how poor a household in relation to how many shortcomings) (UNDP, 2015). The development of this type of indices for poverty has led to more detailed analyses of factors that might influence poverty or the risk of falling into it, and have contributed to steering the work of sectors involved in the provision of education, health, nutrition, housing, and basic urban services. This jump is accompanied by a tendency to expand the frontier of what is measurable by incorporating dimensions of poverty otherwise absent such as psychological well-being,

humiliation, empowerment, job quality and public safety, among others (Alkire & Foster, 2011).

A more detailed examination for figures for economic development in Latin America reveals that 42% of the region's population (140 million) live in economic poverty², while nearly 67 million people are below the poverty line of 2.5 US\$/day. In addition, according to UNDP's definition, over 224 million inhabitants in Latin America (38%) of the population are in conditions of economic vulnerability³. It is estimated that 32.5 million people in Latin America and the Caribbean are in multidimensional poverty, accounting for 6.5% of the population of the region (UNDP, 2015). The incidence by country varies from 4% to 20%. Data for the multiple dimensions of poverty in Soacha are presented in Chapters 3 and 7.

1.2.5. Equity challenges for urban transport in Latin America

Social, economic and spatial conditions of metropolises in Latin America create both inequalities and inequities in different dimensions. First, there is an unequal distribution of space and physical infrastructure for different modes of transport. Data from CAF (2011) shows that although there are approximately 245,000 km of roads available for circulation in metropolitan areas of Latin America (17km/km²), their quality is precarious in the majority of cities. In the case of Bogotá, according to data from Cámara de Comercio de Bogotá (2015), 19% of the primary road network, 44% of intermediate and 56% of local roads are damaged or unsurfaced. In addition, although the majority of the population travels by non-motorised or public transport alternatives, these modes have no preference in the allocation of road space (Hidalgo & Huizenga, 2013). Between 98 and 99% of total road space in cities of Latin America is dedicated to private vehicles. There is an

² Understood as living below an international standard of minimum daily income. UNDP (2015) defines two poverty lines: poverty: 4 US\$/day and extreme poverty: 2.5 US\$/day

³ Defined as people with incomes between 4 and 10 US\$/day.

almost null provision of exclusive roads for pedestrian circulation, which in the region represent only 0.4% of built infrastructure (CAF, 2011). In addition, most of the road infrastructure is in good conditions, and even preferential pedestrian and cyclist spaces, tend to be concentrated in and around the central business districts -CBD- of the different metropolises and higher income neighbourhoods, while most damaged and unsurfaced roads are in low-income (and often peripheral) areas (CAF, 2011; UNCRD-IDB, 2011).

Public transport supply in large metropolises in Latin America is mostly offered by buses and minibuses, which represent 57% and 23% of available public transport seats, respectively. Limited investment in rail-based systems throughout the region has led to this only representing 11% of the total supply of urban public transport. Other vehicles used for public transport in different cities provide the remaining percentage of trips, often informally (CAF, 2011; Cervero, 2013a). Most public transport supply is provided through old vehicles with arguably low levels of servicing and maintenance (Cervero, 2013a). The average age of the bus fleet in the region is 12 years, while minibuses are on average 15 years old. Rail vehicles are even older, with average ages between 30 and 40 years (UNCRD-IDB, 2011). From an equity perspective, this fleet distribution has negative implications on socially disadvantaged populations such as low-income people, children and the elderly. On the one hand, large diesel and petrol-powered vehicles generate higher emissions of particulate matter and other toxic pollutants, which have higher negative health effects. On the other hand, research has demonstrated that passengers of polluting vehicle are more exposed to vehicle emissions, which is a potential health hazard for the majority of transport demand in the region (Woodcock et al., 2009).

Private cars are also the vehicles that carry greater impacts in terms of energy consumption, environmental pollution and accident risk (Cervero, 2013b). Adding all the distance covered by vehicles circulating every day

in the 15 major metropolitan areas of Latin America, data from CAF (2011) reveals that there are 542.7 million km/day. Of this, 85% corresponds to private vehicle and taxis, approximately 9 times the aggregate distance covered by public transport vehicles. This leads to the highest energy consumption (mostly petrol) to be concentrated on private vehicles. Average energy consumption per trip is four times higher in private than in public transport (UNCRD-IDB, 2011). In addition, private vehicles produce 1,568 gr of local air pollutants per trip, while public transport only produces 146 gr. Similarly, private motoring produces 406 gr of CO₂ per trip, while public transport only produces 18 gr per passenger-trip. These figures are influenced by type of vehicles and levels of occupancy. Higher levels of car usage than other modes also increase traffic accidents and fatalities. 51% of traffic fatalities in the larger metropolitan regions in 2009 were pedestrians, while 20% were car users and 14% motorcycle users (CAF, 2011). Both accidents and pollution tend to be concentrated in high capacity highways, which are often in the vicinity of low-income neighbourhoods (Booth, Hanmer, & Lovell, 2000).

Not only the negative effects of transport may affect disproportionately the poor and other socially vulnerable populations in Latin America. The distribution of activities in cities and the characteristics of transport supply can also lead to many of socially disadvantaged groups also becoming transport disadvantaged. Analogous to the definition of social disadvantage, people marginalised as a result of the interaction between land use patterns, the transport system and individual characteristics and circumstances can experience transport disadvantage (Currie & Delbosc, 2010). Transport disadvantage is a multi-dimensional construct that focuses on the effects of lack of transport and other external factors on individuals, which limit their ability to reach and be reached from places, thus having limited participation in social, economic and cultural life (Murray & Davis, 2001; Hurni, 2007). From this perspective, factors such as choice of residential location, spatial distribution of opportunities and inadequate transport can lead to certain individuals becoming transport disadvantaged

(Murray & Davis, 2001; Currie & Delbosc, 2010). Revisiting the definition of transport-related social exclusion introduced in section 1.1, the intersection between social and transport disadvantage leads to insufficient resources to travel and reach opportunities for employment, education, leisure and social interactions, thus leading to transport-related social exclusion (Lucas, 2012).

In urban Latin America, transport disadvantages, inequalities and inequities are reflected in restricted travel capacity for socially disadvantaged groups such as the poor, people with disabilities, the unemployed, and women, among others. Most cities in the region show patterns of spatial concentration of employment that increase travel distances for some social groups. Thibert and Osorio (2014) argue that most cities in the region have strong tendencies toward spatial segregation, defined as the concentration of social groups (determined by income, ethnicity, status, among others) in specific areas of a city or metropolitan region. In Latin America, such segregation is heightened by the development of both gated communities and suburban settlements of high value and connectivity by the elites, who seek larger spaces, security and a reduced 'social burden' by living farther from the city centre, and the development and consolidation of both formal and informal settlements of low-cost housing for the poor in areas where land is still affordable, which tends to be in the periphery or less attractive suburban areas (Gilbert, 1981; Thibert & Osorio, 2014; McLafferty, 2015; Hurtado, 2015).

This situation is aggravated by the tendency for concentration of economic activities in the city centres, where there is an accumulation of wealth and opportunities that lead to a self-reinforcing cycle of investment and development which in turn pushes for greater connectivity, and that reinforces its own attractiveness, keeping most economic activities circumscribed to specific areas of cities. In other words, spatial mismatch describes an ample range of geographical barriers to employment that originate from a disparity, or mismatch, between where people live and

where they work (McLafferty, 2015). This concept finds its origins in the North American literature, where the spatial mismatch hypothesis was developed to explain geographical barriers for accessing jobs for African-American communities (Jocoy & Del Casino, Jr, 2010). In Latin America, racial housing segregation is not the dominant feature. However, areas of economic activity tend to be far from where most of the middle and low income population lives, leading to its own form of spatial mismatch (Blumenberg, 2004; Grengs, 2010; Fan, 2012; McLafferty, 2015).

One of the main consequences of such spatial mismatch is high transport costs and time required to travel in most cities of the region. Data from CAF (2011), shows that in the largest 15 metropolitan areas in Latin America people consume 1.1 hours/trip/day, which adds to over 118 million hours per day. The distribution of such travel times is not uniform across social groups and transport users. Data from the same source for 2009 indicates that while bus users spend on average 58.8 minutes per trip, car users in the region spend 25.5 minutes/trip. Travel by bus can imply spending between 1.5 and 2 times the average travel times in private vehicles. This can be related to the previous arguments related to spatial mismatch and large travel distances. By being farther from the city centre, lower income citizens, who are the social group that uses public transport the most, are forced to experience long travel times as a consequence of longer distances, congestion, and often poor local coverage of public transport that requires long walking times to bus and train stations (Gakenheimer, 1999; CAF, 2011; Bocarejo & Oviedo, 2012; Cervero, 2013a). Long travel times and distances are added to economic expenditure, which in some cases can be disproportionately high. People in large cities in the region spend in total 82 million US\$ per day in transport, of which 78% are spent in the use of private vehicles. According to data from UNCRD-IDB (2011), average expenditure per trip in public transport is 0.7 US\$, while in private vehicles this average is 4 US\$. However, as argued by different studies, this apparently lower cost in comparison with the car can become a heavy burden for low income households. People buying up to 50 tickets per

month can spend up to 20% of their income, while car users tend to spend on average below 10% (CAF, 2011; Bocarejo & Oviedo, 2012; Cervero, 2013a; Hidalgo & Huizenga, 2013; Falavigna & Hernandez, 2016).

1.2.6. Gaps in transport and urban policy and the role of informality

The inequities highlighted in section 1.3.5 should be prioritised by urban transport policies. Although there is evidence of disincentives to the use of the car (Gallego, Montero, & Salas, 2013) and an increased interest to increase cycling and walking, these efforts have not been sufficiently integrated with each other and neither do they consider explicit criteria of inclusion and equity. The context of a relatively low rate of motorization and a substantial share of public transport and non-motorized modes in daily mobility of Latin American cities is an opportunity for development of public policies to strengthen public transport and non-motorised travel as viable and attractive alternatives. However, to achieve such an objective within a framework of inclusive development requires political will and consideration of the conditions and needs of different urban social groups.

In response to social and transport disadvantages, and the insufficiency of public investments in certain urban areas, people in Latin America resort to informal alternatives to address their needs to access transport, employment and housing. According to Porter (2011), there is a strong relation between formality and informality determined by constant 'transactions' in terms of spatial, economic and social relationships that mark the notion of informality as a system that is not external to formal systems, but that is instead a consequence of formal structures, and that is usually strongly related to accepted formal set of rules and settings.

Rapid growth of cities and lack or inadequate regulations and enforcement of land-use plans have led to development of unsuitable land for housing by informal developers in most large cities in Latin America (Gilbert, 2009). Informal housing of people in conditions of poverty is generally related to lack of access to suitable land, severe conditions of lack of infrastructure

and services, illegality and generalized precariousness in construction materials and techniques. With the eventual recognition of these settlements as a non-temporary phenomenon, housing policy has shifted from repressive strategies that sought relocation as a primary objective, to processes of improvement of local environments through self-help and eventually upgrading interventions aiming to the provision of services and security of tenure (UN-HABITAT, 2003). The constant evolution of housing policies related to either formal or informal developments of low-cost housing for the urban poor has often been a central issue in the agendas of local governments worldwide, international development agencies and donors. Estimates by UN-HABITAT (2003) show that the number of people living in informal housing by 2001 was about 924 million people, which represented more than 30% of global urban population. This number was projected to increase to 2 billion people in 30 years (UN-Habitat, 2003). Moreover, the United Nations recognizes that informal settlements in the Global South, “have been the only large-scale solution to providing housing for low-income people”, as they respond to needs of affordability and accessibility, within a context of limited available options, competitive land markets and scarce supply of cheap land (UN-Habitat, 2003, p. 30).

Limited supply of local employment in informal and low-income settlements and urban economies centred on the services sector (CAF, 2011) also leads low-income and other socially disadvantaged populations to work in the informal economy. According to Turner (2009), the informal economy can generally be defined as the part of the economy where activities take place beyond official recognition and record. Common, small-scale, informal economic activities may include small-scale enterprises and trade, street vending, garbage recycling ventures, subcontracting, and homework. In Latin American cities, the nature of the informal economy is highly fragmented by location of work, as it can take place in the home, a small enterprise or on the street. In addition, it can be argued that all people in the informal economy share a lack of formal labour rights and social protection. In Latin America, according to Williams and Lansky (2013), non-

agricultural employment in the informal economy accounts for 51% of total employment in 2012. Such informal economy was distributed in 38.6% in wage employment, 10.9% in household wage employment and 41.4% in self-employment. These figures impose a challenge for urban travel as informal employment tends to involve variable locations and constantly changing travel patterns that may increase travel costs and so reduces disposable income for addressing education, health and other essential needs for human development.

Principles of economic rationality underpinning transport and infrastructure provision lead to precarious coverage of roads, utilities and basic social services in 'less-profitable' areas of the city (Brand, 2013). As shown earlier, these conditions feed upon a continuous cycle of spatial segregation and poverty that reshape city boundaries through informal settlements in the peripheries (Gilbert, 2009; Cervero, 2013b). As a consequence, forms of mobility of peripheral populations differ greatly from those living in more attractive and better-served areas of the city, as a result of imposed gaps of connectivity (Gakenheimer, 1999; Oviedo & Dávila, 2013).

Lack of adequate connectivity imposes high financial loads on poor households, especially in areas where integrated transport systems are not available, increasing transfer costs to reach the core city (Cervero 1998, 2000). In most cases the demand in peripheral areas is not fully covered by the formal system, opening gaps for the operation of small-scale informal transport operators and leading to a complex interplay of formal and informal transport alternatives in the definition of travel choices (Cervero & Golub, 2007). Transport informality is interpreted in terms of the conjunction of services that operate outside formal regulations for collective transport supply, which works on a small-scale, and respond to specific transport needs. These informal alternatives are mainly characterized by the use of low-capacity vehicles and flexible tariff schemes that usually complement regular public transport, entering neighbourhoods that are poorly served by

formal operators and addressing undersupplied demand segments, particularly in lower-income groups. However, informal mechanisms have a limited effect in giving poor families access to the opportunities in large cities and generally entail higher externalities than formal supply (Avellaneda, 2008; Cebollada and Avellaneda, 2008; Cervero, 2013a).

The conditions outlined throughout this section (1.3) frame the processes of urban and transport planning and governance, provision of urban transport infrastructure and services, social and transport disadvantage and transport-related social exclusion in the Bogotá-Soacha conurbation and specifically in Cazucá. The following section builds on the concepts and contextual argumentation introduced in this chapter to present the main research questions and hypothesis of this research.

1.2 Research questions and hypothesis

In this thesis, I argue that the relations between transport and social exclusion are framed by the structure of the transport and infrastructure networks, urban planning and governance, and strategies for addressing needs by peripheral populations experiencing transport and social disadvantage. By addressing the different dimensions of social exclusion, I analyse how inequities at different scales influence availability of resources for travel and other conditions for participation in society. In this context, the main questions addressed by the research are:

(i) How is splintering urbanism related to transport localised in relation to peripheral populations in the Bogotá-Soacha conurbation between 2000 and 2013?

and

(ii) How is transport-related social exclusion experienced and addressed by residents of Cazucá in 2013?

The research questions are positioned in current academic debates regarding urban development, planning and delivery of urban transport networks, fragmentation, and social exclusion. They contribute to current knowledge in relation to how the differentiated provision of urban infrastructure and networks for transport services is mediated by structural factors such as urban structures, geographies, governance, and planning. And how the deliberate bypassing of socially disadvantaged areas can lead to transport disadvantage and exclusion. The research questions are a reflection of the objective of testing particular frameworks from both urban and transport studies in the context of informal settlements in a complex city-region in the Global South.

These research questions are expected to lead to original findings as they set the basis for analyses not frequently found in the literature. On the one hand, there is little application of splintering urbanism to transport networks and services (Ohnmacht, Maksim, & Bergman, 2009), with infrequent use of the theory in cities of the Global South in general (see section 2.5). This thesis proposes and tests a framework connecting the main drivers of splintering urbanism and transport-related social exclusion in a context with characteristics such as those of the Bogotá-Soacha conurbation. This allows the thesis to incorporate issues such as informal transport provision in the process of reconfiguration of networks of connectivity in spatially and socially segregated areas. The research is expected to lead to a replicable framework, methodology and insights for other cases of peripheral informal settlements, and relevant insights for policy and planning in such contexts.

On the other hand, by exploring the applicability of social exclusion in the case of Cazucá, the research not only questions the validity of Western literature in the Global South, but it also reimagines its meaning building on qualitative analysis not frequently used in transport planning and studies in the developing world. By adopting a narrative of dimensions as reflected by the sub-research questions below, the thesis adopts a specific interpretation of social exclusion and tests the 'universality' of its principles

suggested by the literature (see section 2.4). As it will be explained further below, the research also seeks to make an original contribution via the application of a qualitative approach to the analysis of social exclusion related to transport and splintering urbanism, informing a critique on more frequent quantitative approaches to the study of travel behaviour and contributing to debates regarding the role of qualitative information in urban transport planning.

These questions are operationalised in sub-questions that address different aspects of the research. These span from the understanding of the structure of the case study to the governance system that underpins transport planning and development and the different strategies of residents of Cazucá for addressing social exclusion.

SQ1: What is the structure of networks of transport and opportunities in the Bogotá-Soacha region?

SQ2: What are the determinants of governance of urban and transport planning and development in Bogotá and Soacha?

SQ3: How are the main drivers and processes of splintering urbanism manifested in transport networks in Cazucá between 2000 and 2013?

SQ4: What are the links between splintering urbanism and dimensions social exclusion in Cazucá in 2013?

SQ4: What are the strategies developed by residents of Cazucá to address multiple dimensions of social exclusion in 2013?

The thesis builds on the hypothesis that the interrelation between transport and urban planning and social exclusion of the poor in urban peripheries is shaped by (i) the spatial and physical structure of the Bogotá-Soacha

conurbation, (ii) the governance and formal and informal practices of transport and urban planning, which reconfigure the availability and nature of transport networks, and (iii) systematic inequities at different scales (metropolitan, municipal and local) that underpin household and individual strategies for addressing the multiple dimensions of social exclusion.

1.3 Structure of the thesis

The structure of the thesis aims at providing a structured argumentation in relation to each sub-research question. It provides a detailed account of the main approaches and interpretations of transport planning and what some researchers term the social approach' to urban transport (Jones & Lucas, 2012). The thesis also provides a detailed overview of the characteristics of Bogotá, Soacha and Cazucá, stressing the different dimensions of the governance and planning of transport in the conurbation, the municipality and the neighbourhoods in Cazucá, and how planning may influence fragmentation in the provision of transport networks. The thesis addresses this issue through the concept of splintering urbanism (Graham & Marvin, 2001), followed by the study of the multiple dimensions of social exclusion in socially and transport disadvantaged populations in Cazucá.

Following this introduction, Chapter 2 includes a more detailed development of the research argument and expands on the concepts introduced in this chapter. It includes an overview of mainstream transport planning approaches in the Global South, its connections to land-use planning and main critiques from different approaches. This chapter also positions the thesis in contemporary debates on social research in urban transport and lays the foundations for a critique to mainstream transport planning that builds on the results of the subsequent analysis.

Chapter 3 develops further the rationale behind the selection of Soacha and Cazucá as research settings, providing a detailed account of the most relevant economic, spatial and social characteristics of the case study, opening some initial debates regarding the relevance of the particular

features of the case for the rest of the research. It provides the context of the case study and provides a platform for the understanding of social, economic and spatial features that govern the empirical results of the field research.

Chapter 4 is concerned with the methods for researching transport and social exclusion in a context of acute social, geographical and political constraints for urban and transport planning. In this research, methods are as important as the conceptual structure, and as such, this chapter is concerned with presenting how the methods for collection of information and analysis respond to the debates the research is placed within. A section devoted to the selection of the settlements for primary research, sequence of the fieldwork and the specificities of sampling and randomization are also discussed in this chapter. This part of the document also contains the description of the qualitative instruments for research, ethical issues related to the fieldwork and the limitations of the methodology selected.

Chapter 5 introduces the political and institutional spheres of urban and transport planning and development in the Bogotá-Soacha conurbation building on the overview presented in Chapter 3. Ranging from the national to the local scale, this chapter discusses the Colombian political structure, processes of decentralization and their implications for Bogotá and its surrounding municipalities, and the role of provincial and local governments in spatial and infrastructure planning. This chapter provides a general overview of the development of Bogotá and offers a general discussion on the lack of a metropolitan authority for the Bogotá-Soacha conurbation.

Chapter 6 explores issues of governance of urban and transport development in greater detail for Soacha and Cazucá. In this chapter issues of politics, jurisdictions, resources and capacity for the provision of transport and general urban planning and development are examined. Using information from interviews with key informants, residents, government officials and policy makers, this chapter aims to outline the different interests, needs and scopes involved in the recent development of Soacha,

its challenges for provision of urban transport and the levels of representation and (in)visibility of informal areas such as Cazucá.

Chapter 7 builds on the thesis of splintering urbanism and the issues of governance outlined in Chapters 5 and 6 as guiding argumentations to analyse how an apparently fragmented governance and planning can lead to a form of splintering urbanism in relation to transport networks in Soacha and Cazucá. This chapter analyses Soacha as part of a complex set of networks and Cazucá as a set of segregated nodes in such networks. Based on the analysis of the development of the municipality and Cazucá between 2000 and 2013 in parallel to the planning and development of the networks of connectivity, this chapter provides empirical evidence of the effect of spatial planning and institutional constraints in the production of unequal structures of connectivity and fragmentation of networks in Cazucá.

Chapter 8 builds on this, providing a more nuanced perspective of the structure of transport networks, social and transport disadvantages, and the production of strategies for addressing social exclusion in Cazucá. Reflecting on the multi-dimensional definition of social exclusion initially suggested by Church, Frost, and Sullivan (2000) and using evidence from semi-structured interviews, primary observation and secondary data, the chapter examines strategies for addressing different dimensions of social exclusion using content analysis. The chapter explores the role of different transport services and infrastructure, including those identified as informal, and the relationships between inequity, transport supply, social groups and power relations.

The study of urban peripheries, governance, transport and social exclusion is concluded in Chapter 9, which summarises the main findings of the research and their interrelations. This part of the thesis integrates the different scales of the work reflecting on the practical and methodological, as well as the conceptual and empirical learnings from the research. It includes a reflection on the effectiveness of selected methods for data

collection and analysis, their limitations and recommendations for future studies and their implications for transport planning and development in the Bogotá-Soacha conurbation, Cazucá and similar urban areas in the Global South.

Chapter 2 develops further the concepts and discussions introduced in this chapter by exploring both mainstream literature and social research on urban transport. The chapter provides an overview of urban transport planning approaches, introducing the critiques from a social standpoint and defining other relevant concepts for the rest of the research.

2. From transport to mobilities: Transport planning in developing cities and the challenge of social exclusion

In the previous chapter I introduced some of the concepts on which the thesis builds, emphasising the objective of contributing to recent approaches to urban transport planning and delivery in the Global South. This chapter outlines the current state of transport planning in developing countries and explores alternative bodies of theory that may contribute to social considerations in mainstream urban transport planning. The first part of the chapter reviews current models of urban transport planning that are relevant for the research setting, which for the most part originate on accepted and standardised technocratic⁴ methods from industrialised countries. The second part of the chapter presents an overview of alternative concepts and ideas from fields other than engineering, planning and economics, which may contribute to urban transport planning in cities marked by fast growth, high degrees of poverty, social inequality, and weak institutions.

A large share of advances on modern mainstream urban transport planning were initially developed in the United States of America and have experienced further development and standardisation both in the USA and Europe (Hensher & Button, 2000). These were later adopted in countries of the Global South often with the support of international development agencies. The consequences of technical and technological transfer of transport planning approaches from the USA and Europe to developing countries in the 1970s and 1980s, have led to a disenchantment with city-wide, long-range efforts at urban transport planning; and more importantly,

⁴ The term *technocratic* as used in this research refers to the tools and concepts from transport modelling and engineering, which play a central role in conventional urban transport planning.

the 'critical need' for planning guidelines for cities in the developing world to tackle the challenges associated with urban transport development (Dimitriou, 1992).

The distance between what Dimitriou initially identified as the most common approaches to urban transport planning and current practices in developing countries is shorter than it would be expected after more than 20 years since his work was first published (Dimitriou, 2013). While dynamics of urban development and concerns with sustainability that initially motivated Dimitriou's work have since evolved, the basics of the technocratic approach on which he based his analyses, the Urban Transport Planning (UTP) Process remain close to unchanged, at least in Colombia (Ardila, 2002; Ley 769 de 2002; Dimitriou & Gakenheimer, 2011). The following section presents an overview of the definition and development of the most common method to urban transport planning in the developing world. This will be followed by an overview of the 'social approach' to urban transport and a discussion on integration of technical and social concepts and methods in a context like Soacha.

2.1 Urban transport planning: Definitions and evolution

The Urban Transport Planning (UTP) Process is a formalised planning methodology designed specifically for assessing current and expected transport conditions in a city and developing and prioritising strategies for their improvement in the short and long term (U.S. Department of Transportation, 2007). The process involves assessment of current transport conditions, forecasting of population, employment and land use changes; identification of current and future transport problems and needs, design of investment strategies for responding to identified needs; prioritising strategies based on economic, environmental and social evaluations; and developing financial plans and implementation (U.S. Department of Transportation, 2007).

This definition reflects modern interests on environmental and financial sustainability, and a progressive change from infrastructure-based approaches to transport provision towards more holistic policy development for sustainable transport development in industrialised societies (Halden, 2002). However, the main stages of the Urban Transport Planning process remain like its earlier definitions developed in the late 1960s. The UTP is still concerned with what was identified as the core components of the process: transport system analysis and forecasting, land-use and urban development assessment and forecasting, and goals, policy and plans formulation based on technical criteria (Dimitriou, 1990; Pas, 1995; Johnston, 2008).

Awareness of the role of transport in improving urban quality of life and the frequency of planning and development of transport infrastructure in comparison with the planning and implementation of other urban functions led to increased Federal investment in development of transport planning in the United States in the 1950s and 1960s (Johnston, 2004). Rapid increases in private motoring and widespread urbanisation following the Second World War placed enormous strain on transport planning in relation with highway engineering and design (Johnston, 2004). Such concerns alongside the “need to cost transport facility provision to assist investment decisions” gave rise to the “quantification tradition” of the Urban Transport Planning Process (Dimitriou, 1990, p.15).

With the evolution of information technologies and an increasing ease to collect reliable data at larger scales for planning purposes, the UTP process became highly influenced by advances in demand modelling. In particular, the development of the four-step (or stage) transport demand model (Figure 2.1), used for planning and assessment of transport projects up to this date, became a central driver of the evolution of the Urban Transport Planning Process (Pas, 1995). This model, from now onwards noted as the four-step model in line with the name used in Colombia, seeks to simulate and forecast travel conditions and estimate the effects of different interventions

on transport demand behaviour. The model is a result of several studies developed during the 1950s, particularly prominent studies by the Detroit and Chicago Transport Authorities for least-cost definition of highway solutions. To these studies are attributed the development of many of the early methods for travel demand modelling (Pas, 1995; McNally, 2007).

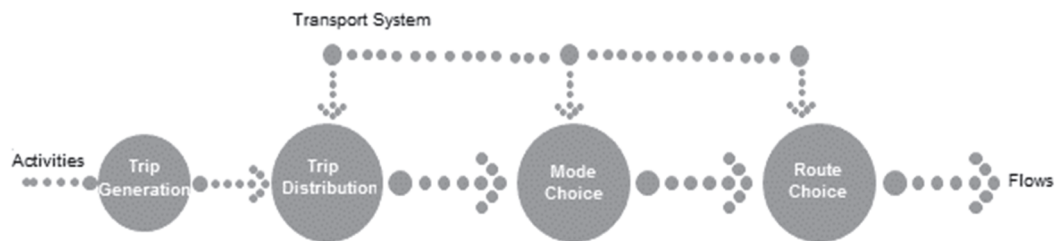


Figure 2.1 The four-step model
Source: Adapted from McNally (2007)

One of the central milestones in the formalisation of the four-step approach was the publication of the 1963 Federal Highway Act in the United States. This required urban areas to implement a continuous, cooperative and comprehensive transport planning process to qualify for federal financing, which made regional modelling a requirement for urban areas. In this regard, the agency that later became known as the US Federal Highway Administration published a series of manuals of methods for transport modelling. These were coded in the Urban Transport Modelling System, or Urban Transport Planning System (UTPS), a standardised method for four-step travel modelling (Bates, 2000; Johnston, 2004). These methods were imported to the United Kingdom in the 1960s and further developed in the years that followed in North America and Europe.

However, as Bates points out: “the development of mainstream techniques has been evolutionary rather than revolutionary”, which refers to the emphasis placed on the refinement of the tools rather than a thorough conceptual debate (Bates, 2000, p. 11). The coherence and compatibility between the unified framework for transport modelling and planning behind the four-step model and the economic theory of utility maximisation and supply-demand balance, as well as the rapid evolution of computing

capabilities has allowed mainstream techniques to grow in scale as new and more complex problems can be addressed (Bates, 2000). Modern modelling techniques for four-step transport demand analyses depend largely on big data sets which allow for high statistical representativeness at different levels of aggregation (Johnston, 2004; Ortuzar & Willumsen, 2011).

The four-step model is closely related to one of the main components of the UTP process mentioned earlier in this section: transport systems analysis and forecasting. The model is concerned with the stages of decision making of the individual traveller: whether to make a trip, where to go, which mode to use, and what route to take. This is one of the aspects that has received the most attention from the academic and practitioner community since the development of the UTP process, to the extent that it is often mistaken with the UTP itself (Dimitriou, 1992).

2.1.1. The four-step model

The four stages of this process are interpreted through sub-models each addressing trip generation, trip distribution, modal split and traffic assignment (Johnston, 2004). These sub-models are grounded in different types of literature and data, which in practice are translated into zoning analyses. As this chapter only seeks to provide an overview of the nature of mainstream transport analysis and planning techniques, details of the theoretical grounds behind each sub-model will not be presented. Nonetheless, a general description of data requirements and general concepts behind these models is included with a view to subsequent argumentation.

Trip generation relies on demographic, economic and other socio-spatial data (i.e. population, employment, number of cars) for predicting the total number of trips generated and attracted from and to each zone of a given study area, urban or otherwise. The main modelling approaches range from simple techniques like application of growth rates based on historical trends

and correlations with other variables (i.e. individual trips growing at the same rates as per capita income), to linear regressions and cross-classification analyses (Ortuzar & Willumsen, 2011). More recent studies have also treated the subject of trip generation as a trip frequency choice problem related to how often a displacement of certain characteristics (i.e. travel purpose, time of day) takes place. This later approach uses discrete choice models based on more complex statistical regression approaches.

The next stage of the four-step modelling process is concerned with demand distribution. At this stage, definition of zones of analysis and levels of aggregation become very relevant as they will define the characteristics of one of the most used tools in transport modelling: The Origin-Destination (O-D) Matrix. The O-D matrix is a way of presenting aggregated trip data in a two-dimensional fashion where rows and columns represent each zone in a study area. The matrix summarises trips made from one zone to another in an urban area during a particular time period (McNally, 2007 Ortuzar & Willumsen, 2011). The matrix can be disaggregated by type of trip-maker, purpose or activity, and is the main input for the assignment sub-models. The O-D matrix is a powerful instrument to understand and visualise aggregate travel patterns in a city. Although this is mainly used as an input for the following steps of the model, its use includes analyses of land-use and transport interactions, accessibility measures and monitoring of travel evolution. However, its usage is limited per the method for its estimation as matrixes obtained through simplified methods may not have information reliable enough to produce adequate indicators.

Trip distribution models can be summarized as destination choice models that adjust the Origin-Destination matrix based on different information and calibration factors. These were developed to estimate future trip patterns that result from changes in the transport network (Ortuzar & Willumsen, 2011). A simplified interpretation of the logic behind these models is that trips are generated at household level whose members are attracted by centres of employment (or other activities), and the distribution will depend

in great part on the cost (both in time and money) of moving between origins and destinations for the trip maker (Johnston, 2004). These models assume that travel behaviour is influenced by external factors like trip ends and distance travelled, which ultimately influence travel costs.

While there is a variety of methods for modelling trip distribution, including growth factors based on primary information from field surveys, one of the most common models for trip distribution is the so-called gravity model. The gravity model is a common example of application of knowledge from different disciplines to the transport planning process. This was originally formulated in the mid-1950s based on an analogy with Newton's gravitational law where trip attraction and distribution are explained by "push and pull" interactions between trip origins and destinations" (Dimitriou, 1992, p. 20; Casey, 1955).

These models incorporate another common concept in transport studies: generalised travel cost, which seeks to reflect the main characteristics that influence the disutility⁵ of a journey (i.e. time, distance, economic expenditure, discomfort). This is typically expressed as a linear function of the trip attributes, which are weighted by coefficients that represent their relative importance for a trip-maker. In the gravity model the allocation of trips between each combination of origins and destinations is a function of the attractiveness of the destination zone, which can be measured in terms of population, employment or other attributes, and the impedance of the network that connects the two zones, generally expressed in terms of the generalised travel cost (McNally, 2007; Ortuzar & Willumsen, 2011). More sophisticated methods for trip distribution modelling have been developed over the years. However, these respond to a similar logic that was described above.

⁵ Defined as the negative or harmful effects of travelling. In earlier definition this referred only to explicit costs such as time and price of travelling (Beckmann & Wallace III, 1969)

The next stage of the four-step model factors the matrix from trip distribution to produce trip tables specific for each mode of transport available (McNally, 2007). These models, addressed as mode choice models use advanced statistical approaches like multinomial logistic regression to reflect the influence of a range of performance variables and trip maker characteristics on the selection of travel modes between origins and destinations (McNally, 2007). These models have received attention from theory and practice since the early stages of development of the Urban Transport Planning Process. This was largely influenced by the increase in the use of the private vehicle, which became central in the definition of highway development policies (Dimitriou, 1992).

Early developments of mode-choice models, known as trip-end models, omitted characteristics of the journey and transport alternatives. This approach sought to preserve characteristics of individuals from the stage of trip distribution and apply an aggregated estimation of trip tables per mode. According to Ortuzar and Willumsen (2011), these responded to a general planning view that linked increases in income with motorization growth. In this regard, the use of these models for urban transport planning aimed at forecasting growth of private motoring demand to plan and prioritize public investments on increasing road capacity. Such approach to urban transport development was later known as 'predict and provide', which according to the same authors can be considered today as "a blind and dangerous alley" (Ortuzar & Willumsen, 2011, p. 209). The main limitation of this approach is that aggregated models were almost insensitive to policy decisions as it adopted a supply-centred focus with limited information and little room for modelling of restrictive policies to the use of the car or detailed multi-modal analyses. In addition, increase in road capacity has been proven to only generate more congestion in the long run (Cervero & Hansen, 2002). In a way, transport studies in this earlier version was a discipline focused on regulating and facilitating the development of motoring. The predict-and-provide approach developed under these

objectives helped consolidate aggregated and deterministic modelling systems that have remained valid since the late twentieth century.

One of the main contributions of the development of the four-step model in the European context is that, since its adoption, public transport has been a relevant factor in demand and supply analyses and models were adjusted to respond to emerging innovations in policy. Modern approaches to mode choice modelling consider individual factors in conjunction with attributes of transport alternatives in a disaggregated fashion, allowing the matrices to respond more effectively to changes in policy and behaviour. These models are based on the random utility theory⁶ and are addressed as discrete-choice models.

These models estimate the probability of selecting a given transport mode based on the socioeconomic characteristics of the person making the choice and their valuation of travel attributes of available transport choices (Domencich & McFadden 1975; Williams 1977; Ortuzar, 1982). Derivatives of this initial formulation include the logit and probit models⁷ and their variations, which have been further developed in past decades. Of late, the use of direct demand models that encompass some of the aspects of the sub-models described before mode choice have been encouraged as they are more aligned with modern views of sustainable transport development (Oppenheim, 1995; Bowman & Ben-Akiva, 2001; McNally, 2007; Ortuzar & Willumsen, 2011). Such an interest in sustainability, which can be traced

⁶ The random utility theory (RUT) is a version of rational choice theory developed by Mc Fadden in the 1960s (Domencich & McFadden, 1975). Models developed under this theory assume instrumentally rational decision-makers who minimise cost to maximise utility or satisfaction. While there is a large range of factors that can affect travel decision considered in RUT models, these are often used to analyse changes in the conditions that influence choice variables (i.e. cost, time, availability) as well as characteristics of decision makers (Schwanen, Banister, & Anable, 2011).

⁷ Discrete choice models such as the logit, nested logit, and probit are used to develop models of behavioral choice or event classification. Choice models estimated reflect the a priori assumptions of the modeler as to what factors affect the decision process. Common applications of discrete choice models include choice of transport mode, choice of travel destination, and choice of vehicle purchase (Ben-Akiva & Bierlaire, 1999).

back to the late 1980s, can be related with increasing evidence of the contribution of transport to environmentally damaging pollution, but also to transport's role in economic development and social and political cohesion (Button, 2009).

The last stage of the four-step model is demand assignment, which is summarised by Bates (2000) as a way of managing the interface between transport demand and supply. This process uses mode-based origin-destination matrices to assign the demand to the transport network. In this regard, the basic formulation of the assignment process is based on the representation of the transport network and the economic notion of supply-demand equilibrium. The definition of the transport network is made in terms of links (i.e. road segments, public transport corridors) and nodes (i.e. road crossings, intersections and overpasses), each with their own associated capacity constraints. A detailed analysis of the concept of networks in transport and urban development will be included in Chapter 5.

In this regard, although assignment is treated as a stage of the modelling process, it relates to a series of separate processes that include estimation of aggregate network measures, zone-to-zone travel costs, calculation of route choice, and adjust demand distribution because of capacity constraints (Ortuzar & Willumsen, 2011). Assignment modelling is an iterative process that requires the consideration of different assumptions and approaches to public and private transport demand as they represent different loads to the network. The model considers the effect of traffic volumes on both the capacity of the links and nodes of the transport networks and the effect of demand interactions on the costs that govern route choice. Advances in this area incorporate more rigorous mathematical programming frameworks for the estimation of demand assignment under congested conditions and refined public and private transport demand distribution in relation to both restrictive policies and developments in public transport technology (Bell & Lida, 1997; Bates, 2000; Ortuzar & Willumsen, 2011).

Although the four-step model has been widely criticised in recent literature and in many cases replaced by stochastic micro-simulation methods more adaptable to the dynamic nature of travel choice and the effect of transport policy, the four-step model is still largely used in countries of the Global South (Vasconcellos, 2001; Hunt, Kriger, & Miller, 2005; Dimitriou & Gakenheimer, 2011). In addition to its limitations in relation to the aggregated nature of its estimations, the use of the four-step model and the evolution of modelling in general evidence that the concern of the discipline with modelling the travel behaviour of the population remains largely present (Iacono, Krizek, & El-Geneidy et al., 2010). Advances in modelling have made important contributions in reducing resources (in time, cost, and infrastructure) required for producing reliable information for planning. However, as shown by the recent appearance of urban microsimulation models, these are still resource-intensive undertakings (Schwanen, Banister, & Anable, 2011). In addition, models remain very complex, requiring delicate calibration and have large data requirements. Although it is true that, in relation to early developments in demand forecasting, many limitations identified in early models have been resolved throughout the years, higher model complexity has also increased the resources, both technical and financial required to access such tools. This becomes a daunting challenge for the adoption of travel demand models in contexts where resources are limited, as is the case in many rapidly growing cities in the Global South, as well as a problem of coherence between evolving regulations seeking to incorporate better modelling in transport planning regulations and the capacity of local governments to finance and make use of such information (Harpham & Boateng, 1997; Gwilliam, 2003; Dimitriou & Gakenheimer, 2011; Cervero, 2013b; Lehmann et al., 2014).

2.1.2. Transport and land-use analysis

In comparison with the components of the four-step model, techniques and sub-models for urban development analysis and forecasting included in the UTP process have experienced a slower development despite early studies

dating from the 1950s and 1960s (Dimitriou, 1992). Tools for analysis of urban development and interactions between land-use and transport in the context of the UTP process seek to provide inputs and feedback to the traffic sub-models described in the previous section.

Literature addressing transport and land use interactions since the formulation of the UTP indicate awareness of the bilateral relationship between transport and urban development in spite of early concerns with traffic forecasting and highway provision. On the one hand, understanding and accuracy in forecasting of future patterns of population and employment distribution become central in the effectiveness of transport models as shown in the previous section. On the other hand, transport interventions can entail important changes in accessibility, understood as the ease of reaching a given zone in an urban area, which affects demand for land and influences the nature of urban development. These changes, in turn, affect trip behaviour and transport demand, influencing performance of previously implemented transport interventions and capacity requirements (Ortuzar & Willumsen, 2011).

The complexity of these interactions and the still active debates in relation to the conceptual and practical implications of transport and land use models have inspired an important number of works and tool developments in this area (McLoughlin, 1969; Mohan, 1975; Echeñique, 1975; Wilson, 1976; Foot, 1981; De la Barra, 1989; Echeñique et al, 1990; Simmonds, 2001). However, lack of consensus related to the best approach to transport and land use modelling have “made theories and software almost inseparable” (Ortuzar & Willumsen, 2011, p. 493). Land-use based analysis and forecasting are almost as data intensive as the previously described stage of the UTP process. However, as with previous sub-models, these models and analyses require assumptions on public and private sector policies, decision-making processes and human behaviour for their effectiveness (Dimitriou & Gakenheimer, 2011).

Different approaches have been adopted over the years in relation to simulation and forecasting of transport and land use interactions, accounting for more than twenty modern models applied in practice in cities of both the Global North and South (Wegener, 2004). Among the approaches to land-use-transport modelling three main groups of methods can be identified. These can rely either on preference surveys⁸ and discrete choice modelling, following a similar logic used in mode choice models (Alonso, 1964; Martinez, 1992), social (based on Newtonian) physics, which resemble the principles of the gravity model (Lowry, 1965), and rigorous mathematical models that simulate human decision-making based on systems dynamics (Forrester, 1969; Swanson, 2003). These approaches have accessibility as a key factor in the definition of the attractiveness of location of employment and housing (Ortuzar & Willumsen, 2011), making these models more closely related to decisions in policy and planning than their traffic counterpart. However, the general concern for quantification and lack of consensus on the best approach to analyses and simulation have led to the more limited role of land-use models in the UTP process and a frequent loose integration between urban development policies and transport planning.

2.1.3. Policy and plan formulation and evaluation

The sequential structure of the UTP traditionally concerned itself with issues of goal definition, policy and plan formulation once information related to the current conditions of transport development and behaviour had been obtained. As observed in the previous stages of the planning process, the logic governing modelling approaches sought to understand and forecast transport requirements to propose and assess infrastructure and other policy interventions that met them (Dimitriou, 1992). This

⁸ These surveys capture information regarding current travel patterns or travel choice under different scenarios. They are one of the most frequent instrument for travel data collection in urban transport planning (Loo, 2009; Dimitriou, 2010; Ortuzar & Willumsen, 2011)

corresponded to the planning scope of 'predict and provide' introduced in the previous section. While the principles and goals of transport planning have evolved in the years that followed the development and formalization of the UTP, modelling approaches discussed in the previous sections are still some of the main tools to meet the criteria by which transport policies are assessed and implemented (Wachs, 2004, Willumsen, 2013).

A central policy objective in modern urban transport planning is to provide society with the benefits of transport services while minimising their cost as much as possible (Wachs, 2004). In this regard, achievement of a balance between costs and benefits entails considerations of effectiveness, efficiency, and equity. These are evaluated against definitions of goals at different scales (i.e. city-wide or city-zone) (Dimitriou, 1992). According to Wachs (2004), effectiveness refers to the coherence between objectives and performance of the transport system; efficiency is related to the cost of a transport investment in relation to its benefits; and equity refers to the distribution of benefits delivered and costs imposed to society by transport projects.

In this regard, the UTP has adopted formal methodologies for comparing the intended and unintended effects of transport interventions over the years. Perhaps the most accepted and applied method, if also contested, is the Cost-benefit analysis (CBA), a methodology well-grounded in the economic theory that has been refined and developed since its formalisation in the 1950s (Messonnier & Meltzer, 2003; Mishan & Quah, 2007). CBA assigns monetary values to identified costs and benefits produced by a project, and has been implemented across different sectors including transport (Cairns, Greig & Wachs, 2003).

In the case of transport policies and projects, particularly in the case of infrastructure, costs are generally easier to identify and quantify. Costs included in transport CBAs commonly include construction, operation, and maintenance, which are weighted in relation to quantifiable benefits such as travel time savings, reduction in greenhouse gas emissions, and

increases in land value because of improvements in accessibility. As the reader may have inferred, benefits tend to be more difficult to associate with economic value than some costs. This has led to debates as to which costs and benefits should be included in the policy evaluation process and how their respective valuation should be.

Some relevant costs and benefits associated with transport interventions that have proven more difficult to estimate and quantify include: reductions (or increases because of higher traffic speed) in road fatalities and injuries, health benefits of improvements in air quality *such as reduction in greenhouse gas emissions), noise pollution, and discomfort in public transport, among many others. In this regard although CBA takes place within a technical framework, it is susceptible to become influenced by lobbies, politics, and even the criteria of people involved in policy evaluation. Thus, it is often argued that this is the stage of the UTP that is less formalised, which poses dangers for the effectiveness of technical methods as they may be either overthrown or influenced by political and individual biases (Wachs, 2004; Dimitriou, 2013).

2.1.4. Recent changes in the UTP

Tools for transport planning have experienced continuous refinement in the last three decades, although modelling has been a central issue even in modern transport studies, which becomes a point of debate. The principles of rational choice and utility maximization that underpin most transport demand models can be considered as too narrow for reflecting the multiplicity of needs, preferences and drivers of transport users with different social identities, beliefs and principles (Levy, 2013) The framework of the UTP has suffered relatively minor changes in its general structure despite incorporation of new concepts and methodologies in its different stages in the industrialised world, such as the introduction of activity-based and agent-based or microsimulation models that make use of large data in forms such as high-resolution parcel or grid-cell that seeks to better-address increasing individualisation of society (Wegener, 2013). This is

partly explained by shifts in policy priorities and emerging concerns in relation to inclusiveness and sustainability of transport, which have influenced from basic concepts governing transport modelling to tools for strengthening decision making approaches.

Among some of the most relevant changes in the different stages of the UTP (Banister, 1998; Schipper, Mareie-Lillieu, & Gorham, 2000; Mackett & Titheridge, 2004; Mackett, Achutan and Titheridge, 2010; Ortuzar & Willumsen; 2011; Cervero, 2013b; Jones & Lucas, 2012) are:

- Changes in modelling approaches: the shift from trip-based models to activity-based models that allow a clearer understanding of transport and land-use interactions in policy development; the incorporation of the definitions of tours and trip-chains in place of the individual trip as base modelling unit, which relates to recent understanding of the interdependence between different displacements; and Accessibility Planning and Modelling, which relies on geographic data for designing transport interventions aiming at better connecting the local and metropolitan scale of the city and maximise access to employment opportunities and other activities.
- Changes in goal and policy definition and evaluation: inclusion of public consultations, panel data and participative planning as elements that contribute to inclusive decision-making processes; and incorporation of concepts and indicators of social exclusion and environmental justice in the evaluation framework for urban transport policies and guidelines for policy development in some countries of northern Europe.

Despite these changes, many cities in the Global South still face longstanding infrastructure deficits and limitations in basic transport infrastructure, which are still addressed through mainstream techniques. In this regard, the following section will focus on the process of adoption of

the UTP and its derivatives produced in the developing world that are relevant for the case of Soacha.

2.2 Transport planning in the Global South

Although geographical, economic and even social elements play a significant role in current transport planning conducted under the UTP process, the overarching rule of technocratic approaches is still evident even in wealthier countries. This has governed not only the past evolution of transport planning in the industrialised world, but also the way it was transferred to, and further developed in the Global South. Between the 1960s and 1980s the UTP process suffered significant changes in industrialized countries because of revised policy goals related to environmental and social sustainability, while paradoxically the developing world saw countless applications of the process in its initial form (Dimitriou, 1992; Schipper, Mareie-Lillieu, & Gorham, 2000; Johnston, 2004, Dickey, 2013). The formalisation and widespread distribution of methodologies and frameworks for urban transport planning in the developed world and the role of development organisations on urban development in countries of the Global South expedited international dialogue and adoption of the UTP in many cities of developing countries (Dimitriou, 1992).

During the decade of the 1960s, the pressing increase in transport demand for private motoring in developing cities pushed local governments facing increasing motorization and demand for public transport without sufficient technical expertise and planning guidelines to seek advice from consultants from more experienced countries (Thomson, 1983). Thus, methods from the early definitions of the UTP were applied in developing countries with minor adaptation to the context of developing cities by consultants under limitations of time and resources related to their contracts (Thomson, 1983). In the years that followed this initial technical transference of approaches to urban transport planning, various North American, European and Japanese consulting firms started offering their expertise to developing

countries at a larger scale, profiting from refinement in modelling techniques and increasing computing capabilities. These studies often led to transport master plans and guidelines for development later adopted by local practitioners (Dimitriou, 1992; Cervero, 2013a). In addition, influence from foreign and local construction companies profiting from infrastructure-centred plans contributed to the consolidation of ambitious transport plans aiming at reforming urban structures through large infrastructure investments with the aims of modernisation, increasing economic output, and employment generation (Rodrigue, Comtois, & Slack, 2013; Vasconcellos, 2001).

Financial aid and capacity building initiatives are inextricably influenced by policy priorities and dominant knowledge in the international agenda (Dimitriou, 2013). In this regard, increasing importance of the role of transport for development in the agenda of international aid agencies from the developed world in the 1970s sought to respond to the transport challenges of cities in the developing world. An example of this is the increase in urban transport lending by the World Bank, which between 1972 and mid-1980s grew from US\$32 to US\$113 million per year for technical assistance and from 0 to US\$13.1 million for training (Thomson, 1983; Dimitriou, 1992). International cooperation missions focused primarily on preparing local practitioners and civil servants in transport to design and implement policies under the UTP. In addition, many studies funded with international development aid produced planning guidelines based on the UTP process for large and medium-sized cities in the developing world, which were later incorporated to requirements for qualifying for external and internal urban transport financing (Dimitriou & Gakenheimer, 2011).

However, international development agencies are not the only agents involved in the transference of policies and planning practices to the Global South. According to the urban policy mobility literature, urban policy has circulated at increasing speed due to a number of factors, leading to what has been termed 'fast policy' (Peck & Theodore, 2001; Peck & Tickell,

2002). Better transport and communication has enabled rapid visits to other cities and new forms of evaluation allows rapid engagements with other policies (Peck & Theodore, 2010). In addition, intermediation from institutions such as think tanks and consulting companies has grown considerably since the 1970s, which profit primarily from policy models they produce and circulate (Peck, 2003). Furthermore, as Peck and Theodore (2001) identify, recent decades have witnessed a 'triumph of politics over policy', which have influenced policy turnover times aligning them with political cycles. Considering that automobile owners have traditionally been a powerful lobby in the developing world, this aided development of infrastructure-incentive and traffic-centred policies for a good part of the 1980s and 1990s (Gakenheimer, 1999).

These milestones in the foreign and local influence on urban transport planning in the Global South have contributed to mainstreaming approaches linked to the UTP process. In addition, prescriptions from structural adjustment policies⁹ fostered investments in additional network capacity in the 1980s in search for improvements in economic performance (Dimitri & Gakenheimer, 2011; Sclar & Toubert, 2011). These policies not only added to a rapid change in the structure of transport networks in developing cities, but also to the dissemination and adoption of transport modelling and design tools under the 'predict and provide' planning logic.

These priorities in conditions for development aid changed in the 1980s and 1990s, incorporating new concerns related to increasing efficiency of public transport. A policy paper published by the World Bank in 1986 for the transport sector (Armstrong-Wright, 1986), which included priorities for urban transport planning in developing countries, stressed the need for

⁹ *Structural Adjustment Programmes (SAPs) were economic policies promoted by the World Bank and International Monetary Fund (IMF) from the early 1980s through provision of loans to developing countries conditional on the adoption of such policies. These loans were designed to encourage the structural adjustment of a country's economy by promoting market competition and limiting government intervention as part of a neo-liberal agenda followed by international development agencies.*

efficient transport management, involvement of private sector, reduction in subsidies, and incentives to competition under a deregulation framework. This echoed the approaches to planning and policy development in many cities that had started to develop their own solutions to urban transport issues using local ingenuity and increased funding from both local and international sources (i.e. Curitiba, Bogotá, Mexico, Lagos, Bangkok) (Mohan, 2000).

Developments in the late 1990s and 2000's were more concerned with the issues of sustainability and incorporated some long-standing needs for capacity building, institutional strengthening and focus on public transport and empowerment of non-motorized alternatives. While significant changes in urban transport development were taking place in some cities of the Global South (such as the ones mentioned above) now, these did not influence significantly the framework for urban transport planning and policy evaluation. Discussions on environmental sustainability following the oil crisis of the 1990s strengthened the need for sustainable transport development and focus on efficient mobility systems centred on public transport investments (Schipper, Mareie-Lillieu, & Gorham, 2000). These interventions aimed at using data from technical appraisals to forecast travel demand and design policy instruments that allowed efficient traffic management that reduced the environmental footprint of urban transport development. This shift in the planning logic is now addressed as 'predict and prevent', and marked the inclusion of more rigorous criteria of environmental appraisals in transport policies throughout the world, and defined new conditions for local and international financing for infrastructure projects (Nielsen, 2005).

A relatively recent change in the focus and form of transport policies in development was outlined in a 2002 World Bank report, which linked urban development and the transport sector with a strong poverty focus (Godard, 2013). With the change of international interest towards poverty alleviation in relation to development, transport strategies started playing a more

active role as part of programmes aiming to reduce poverty in urban environments (Dimitriou, 2013). This marked the inclusion of new criteria for policy design and evaluation and a debate in developing contexts in relation to the objectives of transport master plans and infrastructure interventions (United Nations Development Programme, 2002).

In this regard, recent theoretical progress in relation to some of the social and environmental issues of transport, and concerns with distributional effects of infrastructure investments have been included in transport planning processes in cities of the developing world. These have produced relevant changes in goal and scale definition of urban transport interventions at the local scale, particularly in cities experiencing high levels of social segregation. However, social considerations have been limited in practice to the evaluation and monitoring spheres of the planning process, with only some project-specific initiatives to address poverty in some developing cities (Carrigan et al., 2014). Similarly, to what was described at the end of the previous section, the influence of shifts in policy priorities and guidelines had a more perceivable effect on the detailed implementation of the urban transport planning process rather than its overall structure.

Top-down developments resulting from traditional planning processes are largely focused on technical and financial appraisals focused on efficiency and cost-effectiveness. Such objectives however, tend to be more focused on the general than on the specific. In relation to the definition of equity introduced in Chapter 1, the interpretation of equity in traditional planning processes relate to horizontal equity (Litman, 2014), which requires that resources are allocated evenly to groups (or individuals). As argued by Delbosc and Currie (2011c), this approach can be related with the principles of 'mass transit', where it is aimed at maximizing the number of people being transported under adequate conditions of efficiency and cost-effectiveness. However, a different type of equity, vertical equity, implies that disadvantaged groups (or individuals) are identified in planning in order

to design specific policies in their favour, or to insure not to worsen their current conditions (Litman, 2014). The latter is a much-less frequent approach in planning in the Global South, which supports the need for additional debates in relation to seeking ways of incorporating a stronger social dimension in theory and practice around urban transport in cities of developing countries.

2.3 The ‘social approach’: Transcending disciplines

The dynamic nature of mobility limits the effectiveness of traditional methods of analysis. Theories linking mobilities with social practices acknowledge the limitations of existing approaches to transport-related dynamics for a thorough analysis of events and processes of different scales, times, and frequencies (Buscher & Urry, 2009). Some authors have suggested the need for the development of *mobile methods* for addressing the changing nature of mobilities and the challenges associated to their study (Urry, 2007; Hein, Evans & Jones, 2008; Buscher & Urry, 2009; Kaufmann, 2009).

In this regard, a relevant set of ideas in this earlier wave of transport-related theories in the ‘mobilities paradigm’¹⁰ proposed have been developed by John Urry and later developed by social scientists working on urban development issues (Urry, 2007; Kaufmann, 2010). This is an effort in producing an alternative theoretical and methodological landscape in relation to transport-related economic, social and political practices, seeking to better understand various kinds of movement of people, ideas, information or objects. The term ‘mobilities’ refers to the general objective of consolidating a ‘movement-driven’ social science where different types of mobility and immobility can be “conceptualised as constitutive of economic, social and political relations” (Urry, 2007, p. 43). This intends to

¹⁰ Understood as a framework of concepts, results, and procedures within which subsequent work is structured, following Kuhn and Hawkins' interpretation (1963).

go beyond traditional interpretations of mobility (singular) as material displacements, as shown in the overview of the conceptual basis of the UTP. The mobilities paradigm seeks to include movement, actual, potential and blocked, as well as the conceptualisation of immobilities, practices of dwelling and place-making as relevant components of a generally mobile society.

This conceptualisation of mobilities defines multiple and intersecting mobility systems that are in a continuous adaptive and evolving relationship with each other as an expression of a 'disembodied' interpretation of social life, following the ideas of Latour (1993) (Urry, 2007). Under this interpretation, means of travel and communications connecting varying distances contribute to social life and relationships of work, family, education and politics as enablers of relationships of presence and absence. Urry identifies five interdependent 'mobilities' "that produce social life organized across distance and which form (and re-form) its contours" (Urry, 2007, p. 47):

1. Physical travel of people for different purposes in a variety of scales and frequencies (i.e. work, leisure, family life, and pleasure, migration and escape).
2. Physical movement of objects that result from economic activities, the movement of goods with social purposes (i.e. presents and souvenirs), and the medium and long-term movement of and reconfiguration of people, objects, and spaces as part of dwelling and place-making.
3. Imaginative travel produced through conversation, images of places and people appearing on and moving across different print and visual media.
4. Virtual travel that allows presence and action at a distance, transcending geographical and social distance (i.e. on-line

transactions, virtual meetings and conference calls through the internet).

5. Communicative travel through person-to-person contact enabled by communication technologies.

Empirical research on the social meaning of transport and mobility may focus on any of these individual mobilities and their dynamics and structures. However, the mobilities paradigm emphasises the interdependencies between different mobilities, and the associated moments of immobility they entail, which in turn influence states of social connections across different distances (Urry, 2007). The mobilities paradigm provides a set of conceptual tools for analysing the interdependence of these movements and economic, social and political relations, and the influence of discourses and policies on such relations. Different types of mobilities play a relevant role in issues such as social exclusion. Nevertheless, for this thesis, the empirical research focuses on the physical travel of people (or travel behaviour), which is explored in the context of Soacha and Cazucá in Chapters 7 and 8.

Urry's ideas are not the first conceptual development aiming at understanding transport-related dynamics beyond traditional approaches with a technocratic origin. Concerns about the social dimensions of transport date from as early as the late 1950s, when Dutch, German and French sociologists started using the ideas of 'transport sociology' and 'sociology of traffic' (Claessens, 1959; Groenman, 1959). Transport sociology is described by De Boer (1989) as a rather undeveloped sociological sub-discipline concerned with the social impacts of infrastructure, the distribution of consequences of transport planning, the appropriation of the streets as public spaces, and the constraints imposed by lack of mobility. These ideas have echoed especially in the European context, where they have been explored by extensive literature since the 1970s. However, these were not only limited in their influence of practice,

but failed to be incorporated in international policy dialogues until the late 1990s as shown in the previous section.

Urry's ideas reflect a new wave of theories concerned with the social dimension of transport that picks up from early advances in this area. Current interpretations of mobility have reached a consensus in relation to the contribution of travel to social life. Travel offers the means to reach essential opportunities such as jobs, education, shops, and friends, which affect the quality of life. Lack of mobility is inextricably linked to social disadvantage and exclusion as defined in Chapter 1 (Ohnmacht, Maksim, & Bergman 2009; Lucas, 2012). In addition, as opposed to mainstream travel analyses that interpreted travel capacity as a function of supply and economic resources, new interpretations include physical and mental capabilities and time as essential assets for mobility. Thus, those lacking the resources and transport options required for being able to move become deprived from interacting with the (whole extent of) opportunities offered by society (Bauman, 2000).

The interrelation of different mobilities and their interdependence with networks of transport and communication highlighted in Urry's mobilities paradigm have sparked both earlier and later research concerned with the ways in which transport can address poverty. These become direct critiques of the traditional transport planning processes and priorities to the extent that providing transport facilities or reducing financial (and other) barriers to travel are interpreted as ways to address poverty. Under social views developed in the late 1990s, transport is interpreted as a service that can reduce poverty by increasing economic efficiency and enhancing opportunities (Gannon & Liu, 1997).

These ideas are frequently pitted against the principles of mainstream transport planning, particularly as applied in developing countries, which place higher emphasis on the connectivity of busier areas under the principles of gravitational models.

The relative position in space regarding spatial opportunities and the availability of means of transport contributes to an individual's or group's social position as it either facilitates or hinders access to jobs, healthcare, education, etc. (Department of the Environment, Transport and the Regions, 2000). In urban environments with high levels of social and spatial segregation, this becomes a significant concern for transport planning and infrastructure provision, especially under the identified policy objectives of poverty reduction. The concept of accessibility becomes thus essential to link spatial inequalities and social inequality as it allows researchers and practitioners to better operationalise the strategies developed by different groups to reach activities, resources and goods through means of transport (Urry, 2007).

2.3.1. Accessibility

Accessibility plays a central role in more socially-centred approaches to transport and mobility. Accessibility focuses on the opportunities that become available because of transport investments. The usefulness of accessibility in the study of transport policies lies in its potential for estimating benefits beyond traditional cost-benefit analysis. According to Urry (2007, p. 17): "Access is unequally distributed but the structuring of this inequality depends inter alia on the economics of production and consumption of the objects relevant to mobility, the nature of civil society (...), the geographical distribution of people and activities, and the particular mobility-systems in play and their forms of interdependence". Based on this idea, accessibility analysis become an instrument to identify and address mobility-related inequalities produced by an imbalanced distribution of opportunities, wealth and services.

Accessibility has occupied an increasingly relevant position in modern urban transport theory and practice, leading to a change in policy objectives as proposed in UN-Habitat's Human Settlements report of 2013 (UN-HABITAT, 2013). Accessibility focuses on the role of transport as an enabler agent to reach destinations where needs can be met, opening the

door not only to better transport planning but also to interventions in terms of location and proximity, as well as communication and 'electronic connectivity' (UN-HABITAT, 2013). Accessibility encompasses transport policies at different scales, ranging from street characteristics and barriers to network arrangements and efficient public transport development. It is a concept that has been explored from various disciplines, including engineering, urban geography, sociology and planning, among others. The concept of accessibility, from a transport policy perspective, encourages multi-modal solutions with larger considerations for individual and collective conditions for mobility, paying especial attention to vulnerable groups like the elderly, disabled and poor. It can also involve actions related to changes in land-use, or the improvement in connectivity through ICTs and other mechanisms that can reduce the need to travel.

Accessibility is a multidimensional and cumulative concept that links conditions of availability of individual resources and assets for travel with structural conditions such as the distribution of opportunities in space and the availability of transport infrastructure and services. It is also a concept that is relative and dynamic, as it can be measured in relation to other individuals or groups, changes over time, and can be defined at different scales, from individual to neighbourhoods and communities (Church, Frost, & Sullivan, 2000; Hine & Mitchell, 2003; Gray, Shaw, & Farrington, 2006; Stanley & Vella-Brodrick, 2009; Lucas, 2011b; Jones & Lucas, 2012). Van Wee, Geurs, and Chorus (2013) identify four components of accessibility:

1. **The land-use component:** this component of accessibility encompasses the land-use system, which includes (i) the number, quality and spatial distribution of opportunities available at each destination (i.e. jobs, shops, health, social and recreational facilities, etc.), (ii) the demand for these opportunities at residential locations (origins), and (iii) the interaction between demand and supply for opportunities, which could lead to competition for activities with

restricted capacity such as jobs, school vacancies and hospital beds (van Wee, Hagoort, & Annema, 2001).

2. **The transport component:** corresponds to the transport system, which is interpreted as the disutility associated to the distance between an origin and a destination for an individual using a specific transport mode. Such disutility encompasses the amount of time (travel, waiting and parking), economic costs (fixed and variable) and effort (including reliability, comfort, risk of accidents, etc.). The disutility referred to in the transport component is the result of confronting supply and demand. Supply of infrastructure includes its location and characteristics (e.g. maximum travel speed, number of lanes, public transport timetables, travel costs), while demand relates to both passenger and freight travel.
3. **The temporal component:** is associated with time restrictions for making use to opportunities. For example, the availability of opportunities at different times of the day as well as the availability of time for individuals to participate in activities such as work and recreation.
4. **The individual component:** the individual component includes the differentiated needs by individual characteristics (e.g. age, income, educational level, household situation, etc.), abilities (such as people's physical condition, availability of travel modes, etc.) and opportunities (including income, travel budget, educational level, employment status etc.). Such individual features can influence people's level of access to modes of transport (for example, ability to drive or borrow a car), and the opportunities distributed in space (e.g. match of abilities required for certain jobs in proximity to the area of residence), which can in turn constraint accessibility. Research suggests that accessibility to employment is significantly affected when occupational is incorporated in the estimation of

accessibility indicators (Geurs & Ritsema van Eck, 2001; van Wee, Hagoort, & Annema, 2001).

The interaction between these components can also influence accessibility. For instance, the distribution of activities in space (land-use) is a determining factor in travel demand (transport), and it can also produce time constraints (temporal) and influence people's opportunities (individual). In addition, the individual component interacts with other components because individual characteristics affects the subjective interpretation and valuation of the different components of the disutility of transport, preferences for activities and the availability of time for specific activities.

Measuring accessibility impacts of transport infrastructure investments requires robust definitions of accessibility and adequate data to measure the characteristics and expected benefits of such interventions. Van Wee et al. (2001), define three main types of accessibility measures: infrastructure-related, activities-related and mixed approaches.

- Infrastructure-related measures: The first approach to measuring accessibility focuses on characteristics of transport supply and demand. This type of indicator focuses on the transport component of accessibility. This approach is linked to the effects of transport infrastructure and services over the connectivity of people and activities. In other words, infrastructure-centred accessibility measures evaluate the efficiency, and performance of transport networks and services. Common indicators include, travel speeds, volumes and peak-hour demand (Priemus & Visser, 1995; Linneker & Spence, 1996; Gutiérrez, 2001; Ribeiro, Antunes, & Páez, 2010).
- Activity-related measures: these are linked with land uses and location of opportunities of different types, giving attention to the number of activities that can be reached within a given range of travel cost. Measurements of cost include time, distance and money.

Some of the most useful and applied methodologies of analysis of accessibility start from this perspective. Activity-related measures, also known in the literature as location-based accessibility, focus on the assessment of quantity of opportunities and their characteristics within reach from a given origin location. Examples from this perspective include contour measures, balancing factors and potential measures. The latter considers travel time/cost between locations and the amount of opportunities by specific categories (e.g., employment) within a specific distance (e.g., 45 min travel) (e.g. Hansen, 1959; Cervero & Landis, 1992; Cervero & Seskin, 1995; Gutiérrez, 2001; Van Wee, Haggort, & Annema, 2001; Halden, 2002; Dong et al., 2006).

A third, mixed approach, results from a combination of the two previous perspectives. Mixed indicators are generated because of an increasing interest in developing comprehensive methodologies that consider both transport supply and the spatial distribution of cities and people. Some authors who have used this kind of methodology have developed more complex measures that seek to better-understand the interactions between land-use and transport in terms of their impact on accessibility (i.e. Nutley, 1980; Van Wee, Hagoort, & Annema, 2001; Levine & Garb, 2002; Nutley, 2003; Wu & Hine, 2003; Curtis, 2008; Straatemeier, 2008). Generally, nearly all accessibility definitions and measurements consider elements linked with generalized travel costs, demand characteristics such as number of households, job clusters, commercial activities, and origin-destination interaction. Geurs and van Wee (2004), argue for a modified classification of accessibility measures that differentiates mixed measures between Person-based measures and Utility-based measures. Per these categories, person-based indicators deal with the capability of individuals for reaching different types of opportunities; examples of indicators include travel time/cost between locations, skills matching, and individual temporal constraints. Utility-based measures emphasize on the economic dimension of accessibility, being specifically concerned with the benefits from

accessing opportunities. Examples of utility-based indicators include space-time measures, log sum benefit measures, and balancing factor benefit measures, which consider transport users' benefits and travel time and cost variations throughout a day (Geurs & van Wee, 2004; Pyrialakou, Gkritza, & Fricker, 2016).

Although accessibility is included in this chapter as part of the 'social approach' given its focus on the interactions between individual, transport and land-use characteristics, land use and transport models have considered the role of accessibility in location choices from their earliest development. Different models have been developed to measure accessibility and quantitatively understand its effects. Microsimulation models and computational tools have also been developed in recent years in order to estimate the effects of accessibility at different scales and for specific groups (See for example Geurs & Van Wee, 2004; Preston & Rajé, 2007; Geurs et al., 2010). However, these have not been fully integrated in conventional transport planning approaches, limiting them to policy analysis and research rather than policy development and planning.

2.3.2. Social exclusion related to transport

The concept of accessibility is intimately related with that of social exclusion. Stanley et al. (2010) identify that an important precedent in the work on transport and social exclusion is the study developed by the Social Exclusion Unit (Social Exclusion Unit (United Kingdom), 2003), which places special focus on issues of accessibility as determinants of a reduced participation in mainstream society. Such focus on accessibility is explored by making connections between the exclusion of people without access to a car, and their needs for accessing specific places such as healthcare facilities, employment, education, food shops, sporting, leisure and cultural activities (Stanley et al., 2010). Previous work to the Social Exclusion Unit report, also in the UK, identified that social exclusion takes place when an individual cannot connect with services and facilities needed to fully participate in society (Church, Frost, & Sullivan, 2000).

The social exclusion term refers to the co-existence of a set of social problems associated with the fragmentation of traditional social structures, the decline in participation in normal processes of society, as well as increasing deprivation among social groups (Burchardt, 1999; Witter, 2010). Building on the definition of transport-related social exclusion introduced in Chapter 1, the link between social exclusion and accessibility can be understood as “the process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or in part to insufficient mobility in a society and an environment built around the assumption of high mobility” (Kenyon, Lyons, & Rafferty, 2006, p. 10).

Relationships between transport and social exclusion have been explored by several studies in the UK and the European community where survey methodologies have been used to identify specific conditions related to the influence of transport in social exclusion (Church, Frost, & Sullivan, 2000; Lucas, Grosvenor, & Simpson, 2001; Social Exclusion Unit, 2003; Hurnie, 2006; Páez et al., 2009). Other work has expanded these analyses in the Australian context, where the concept of social exclusion has occupied a relevant normative role as well as sparked various research related to transport, which explore its links with wellbeing, social disadvantage and social capital (Currie & Stanley, 2007; Scutella, Wilkins, & Horn, 2009; Delbosc & Currie, 2011a; Engels & Liu, 2011). However, as argued by Stanley (2011a, p. 33), this has constrained the development of the concept as most research have been developed in contexts “where those being excluded are in the minority”. Therefore, further consideration is required in research regarding the usefulness of the concept of social exclusion in cities and regions where a larger share of the population (sometimes the majority) can be said to be, at least partially, excluded.

From a social exclusion perspective, inequalities and inequities related to transport, such as those described in Chapter 1 for the Latin American

context and which are often a consequence of mainstream urban and transport planning, can disproportionately affect people experiencing social and transport disadvantage. From earlier studies it has been identified that poor transport contributes to social exclusion in various ways that go beyond its role as a constraint for accessibility (Preston & Rajé, 2007; Delbosc & Currie, 2011b). Communities experiencing social disadvantage can suffer disproportionately from the externalities associated with the inequitable distribution of urban transport such as pedestrian deaths because of limited or no facilities for walking, air and noise pollution that contribute to poor health, and the fragmentation and isolation that can result from development of large and busy roads in proximity to low-income communities (Social Exclusion Unit, 2003).

For people experiencing conditions of exclusion, access to goods and services and the ability to travel to activities relevant for normal participation in society is removed as a result of an urban environment that imposes physical movement as a precondition for accessing most opportunities it offers (Koonings & Kruijt, 2007; Knox, 2009; Giuliano, Chakrabarti, & Rhoads, 2015). These conditions are often reinforced by poverty in its multiple dimensions (as defined in Chapter 1), and a low quality of public transport services in neighbourhoods with low car ownership. As argued by Stanley et al. (2011), although the concept of social exclusion finds its origins in work that sought to improve our understanding and representation of poverty, it has since evolved to describe barriers that can prevent full participation in society. These barriers, like conditions of poverty, can include conditions such as low income and unemployment. However, other barriers are more closely related with structural issues such as poor health, limited or no education, ethnic background, age, poor mobility, among others (Stanley et al., 2011). In this regard, research has found that although social exclusion and poverty are closely related conditions, neither all people that experience transport-related social exclusion live in poor neighbourhoods nor that all people experiencing poverty are excluded (Lyons, 2003; Macdonald & Grieco, 2007; Schwanen et al., 2015). There is

a tendency to define and operationalise social exclusion “through the nomination of specific dimensions of exclusion, researchers tending to use four or five dimensions” (Stanley, 2011, p. 31). Lyons (2003) points to several inter-related accessibility factors which govern the understanding and influencing of exclusion such as mobility, use of ICTs, land use and (de)concentration of public services, time use, management and constraints, and availability of and entitlement to use public space. Church, Frost and Sullivan (2000) identify seven instances in which social exclusion can be detected in relation to the configuration of urban spaces and urban transport systems¹¹, and their interactions with individual characteristics. Such dimensions, which are central for the empirical research developed in Chapter 8, are as follows:

1. Physical exclusion: physical features of the built environment and systems for mobility can constrain accessibility for social groups and individuals that may experience physical and/or psychological difficulties to make use of transport systems. Such barriers can affect different groups of people that include people with learning difficulties, children and the elderly, people with impaired mobility of limited sight and hearing (Church, Frost, & Sullivan, 2000; Titheridge, 2004). The combination of different physical features of the transport systems and the built environment might lead to various levels of exclusion and be cumulative. For example, inadequate facilities for pedestrians at the local level can prevent specific groups from travel even if there is appropriate coverage of public transport and other infrastructure and vice versa (Mackett, Achuthan, & Titheridge, 2008).

¹¹ Understood as the combination of infrastructure, public transport services, private vehicles, and spaces for pedestrian and non-motorised circulation.

2. Geographical exclusion: while Church, Frost and Sullivan (2000) argued at the time their paper was published that there were no systematic evidence of the relationship between inaccessibility related to geographical and urban segregation factors, more recent research has proven that peripherality, poor transport provision at the home end and spatial mismatches between housing and opportunities contributes to exclusion and deprivation (Willis, 2009; Combs & Rodríguez, 2014; Halás, Klapka, & Kladio, 2014; Giuliano, Chakrabarti, & Rhoads, 2015; Lichtenberger, 2015; McLafferty, 2015). In Latin America, as argued in Chapter 1, cities tend to be more spatially and socially segregated, and whilst peripheral gated communities of high income can be as far or more from centres of employment as informal settlements of low-income populations, the first are well-connected to the transport systems while the second are often bypassed in the processes of infrastructure and services provision (Graham & Marvin, 2001; Irazábal, 2004; Graham, 2010; Thibert & Osorio, 2014). These areas also tend to have very poor local supply of employment and other opportunities, which might reinforce the negative effects of urban geography in their accessibility and inclusion (Bocarejo et al., 2014; Crankshaw, 2014).
3. Exclusion from facilities: the configuration of urban geographies tends to negatively affect poor populations and other socially disadvantaged groups. People living in areas with high levels of social exclusion, as identified by Church, Frost, and Sullivan (2000), not only have limited access to jobs but also to opportunities for shopping, financial services, health and education facilities and spaces for leisure and cultural activities. Land use policies and market trends can lead to some areas being increasingly attractive for certain facilities, which tend to be farther away from where the poor and the disadvantaged live. In

some cases, social issues in poor neighbourhoods such as crime and insecurity, or plain fear by business owners, can drive away local opportunities, increasing deprivation (Wegelin & Borgman, 1995; Valenzuela Aguilera, 2013; Smeeding, 2015). Policies and strategies for distributing facilities for health and education are other potential factors of exclusion. Increasing distances and inaccessibility to different opportunities, including those that do not generate income, are clear factors of inequity in urban societies, and conditions that make prohibitive to participate in social and cultural opportunities, as well as facilities for health and education are factors of exclusion as relevant as not being able to secure income for the family (Grengs, 2015).

4. Economic exclusion: as argued earlier, social exclusion is closely related with poverty and lack of sufficient income to address needs. Church, Frost and Sullivan (2000) identify that the combination of income and affordability constraints of the transport network reduce accessibility to different opportunities, emphasising on employment. Prohibitive monetary costs of travel prevent low-income people from travelling and/or restricts the geographical extent of their search for potential destinations (Church, Frost & Sullivan, 2000; Schwanen et al., 2015). In cities of Latin America, evidence suggests that transport costs, even in public transport can take a considerable portion of disposable income in middle-low and low-income populations (Serebrisky, Gómez-lobo, Estupiñán, & Muñoz-raskin, 2009; Bocarejo & Oviedo, 2012; Welch, 2013; Falavigna & Hernandez, 2016).
5. Time-based exclusion: Church, Frost and Sullivan (2000) point at difficulties for allocating time to different commitment and the constraints of the transport network to play a role in social exclusion of specific social groups and individuals, such as carers. Research exploring the issues of time availability as a

factor of social inequities suggest the existence of 'time poverty', which might disproportionately affect specific individuals, with particular gaps related to gender and the distribution of domestic work (Turner & Grieco, 2000; Warren, 2003; Harvey & Mukhopadhyay, 2007;). Social conventions and traditionally defined roles in households that impose caring for children, domestic work, distribution of paid and unpaid labour and other commitments lead to people having limited time to travel, which is compounded by restricted availability of transport services at certain times, such as nights (Kwan, 1999; Salonen & Toivonen, 2013; Rest & Hirsch, 2015). Household structure, availability of social and support networks and the nature of jobs are factors influencing time exclusion (Church, Frost, & Sullivan, 2000)

6. Fear-based exclusion: the expanded definition of social exclusion related to transport to include other factors beyond geographical and economic considers issues such as fear of crime and perceived insecurity as factors that can prevent people from accessing certain places (i.e. a specific neighbourhood, public transport stops, facilities, etc.) and modes of transport (Church, Frost, & Sullivan, 2000). Fear of crime is closely related to social characteristics. Recent research argues that one of the stronger determinants of fear of crime is gender, although other characteristics such as ethnic background and religious identities can also influence the interaction with public spaces and transport facilities related to fear of crime, victimisation and abuse (Day, 2001; Whitzman, 2007; Altman & Zube, 2012; Levy, 2013). In urban Colombia, various factors such as conflict and forced displacement, high presence of gangs and street crime, and localised poverty in specific areas of the city, contribute to high perceptions of crime and insecurity that can prevent different population groups to travel to certain areas or to use public transport (Sánchez & Palau, 2006; Torres Aranguren,

2011; Romero, 2014). This makes the fear dimension of social exclusion particularly relevant in the Colombian context.

7. Space-based exclusion: this dimension of social exclusion is associated by Church, Frost, and Sullivan (2000) with the design, security and management strategies of different public spaces, which might impair the sense of ownership if certain social groups from accessing them. This can also be extended to semi-public spaces, common in cities of the UK, and be related to groups at risk of prejudice and discrimination (Schwanen et al., 2015). In contexts where marked divides between the elites and the poor produce splintering urbanism (Graham & Marvin, 2001) as defined in Chapter 1, spaces tailored for access opportunities and mobility by the elites become exclusive and disempowering for other social groups leading to exclusion. In other contexts, where power relations are defined and exercised informally, and where illegality and crime can have a higher influence on the rules for interacting with public space (Levy, 2013), Space-based exclusion can be more severe or involve a wider range of social groups and individuals.

The seven dimensions of exclusion outlined by Church, Frost, and Sullivan (2000), which have been explored and redefined by subsequent studies (Titheridge, 2004; Stanley & Lucas, 2008; Stanley & Vella-Brodrick, 2009; Lucas, 2012), are clearly interrelated, intersecting for certain groups, at different scales and changing over time. This poses challenges not only for the analysis of social exclusion but also for the allocation of resources and design of actions for tackling different dimensions of social exclusion for different social groups. As argued by Stanley (2011b), another clear issue of research on social exclusion is that the concept is used in a circular sense. Social exclusion is treated as “both a cause or driver of a lack of personal opportunities and the outcome of a lack of opportunities” (Stanley, 2011b, p. 32). This requires careful interpretation of both the conceptual

definitions of different dimensions of social exclusion and available evidence in relation to each dimension. It is important to acknowledge the cumulative nature of factors of exclusion, which can reinforce each other and change over time (i.e. low education and skills influence income, political and social participation, which can in turn be related to housing choice and security) (Schwanen et al., 2015). In addition, social exclusion is relative, to other individuals, social groups, communities and neighbourhoods, which also marks the concept as a non-discrete issue, surely not a binary one. In fact, it has been argued that although the definition of social exclusion has evolved since its first developments in the area of transport studies, there is still lack of consensus between researchers on the definition of social exclusion, and even more of its opposite, inclusion (Stanley & Vella-Brodrick, 2009; Lucas & Markovich, 2011; Jones & Lucas, 2012; Lucas, 2012).

According to Lucas (2004), the rationale for adopting a social exclusion approach to transport disadvantage lies in its capacity to help policy makers recognise the multi-dimensional, relational and dynamic nature of the problem. In the same way, the notion of social exclusion is useful for policy definition and evaluation because it forces one to concentrate not only on the disadvantages of being excluded because of transport-related inequalities and inequities, but on the economic and social outcomes that result from such inequalities and inequities. In fact, when studying the effects of the unavailability or insufficiency of transport from a social exclusion standpoint it is fundamental to analyse the consequences of lack of accessibility and tackling transport deficiencies that could lead to more equal and people-focused transport planning initiatives at different level of activities, scales and timespans (Lucas, 2012).

The rationale for adopting a social exclusion perspective is rooted in its understanding in previous and contemporaneous studies as a (partial) consequence of lack of transport supply or lack of access to transport (Preston and Rajé, 2007). This has motivated recent research linking

(in)accessibility and social exclusion in various urban contexts. Quantitative approaches to the analysis of transport disadvantage and its links social exclusion have prevailed in most research on the subject (Kamruzzaman et al., 2016). For instance, Mattoli (2014) approaches social exclusion in Britain by exploring the conditions of transport disadvantage of carless households. His framework provides an interesting discussion on the role of car dependency for addressing social exclusion and the green concerns of sustainability (Mattoli, 2014). This analysis is rooted on quantitative analysis of travel behaviour and social demographics as well as development of indicators that can represent relevant variables of social exclusion and disadvantage related to the British context. A similar approach is adopted on a recent research by Adeel, Yeh, and Zhang (2016) in Pakistan, where travel experiences are examined utilising a case study approach and sample surveys, producing regression analysis and indicators of the man in supply to identify links between transport disadvantage and activity participation. This study follows a similar framework and methodology to the one used by Paéz and Farber (2012) to explore participation in leisure activities by disabled adults in Canada.

Other recent studies have focused on linking disadvantage and social exclusion related to transport with other relevant social concepts such as health, equity, and social capital (see Mackett & Thoreau, 2015; Manaugh, Badami, & El-Geneidy, 2015; and Schwanen et al., 2015). These studies are positioned in different debates and continuously evolving frameworks, technologies, and priorities for urban transport policy and practice. The research by Manaugh, Badami, & El-Geneidy (2015), explores conceptually social equity and its links with transport disadvantage to critically examine how they are incorporated into North American urban transport plans. By conducting a rigorous examination of the transport plans in 18 large North American metropolitan areas, this research provides useful examples and insights regarding policy applications of social concepts.

The paper by Mackett & Thoreau (2015) engages with a more theoretical discussion regarding the links between transport health externalities and outcomes and their effects on the socially excluded. This is an interesting attempt to identify factors related to transport and help and how they are mediated by social conditions in accessibility resulting in an unequal distribution of social impacts. This research exemplifies the understanding of transport-related social exclusion as a consequence of cumulative disadvantages, which places people in conditions of exclusion in a vulnerable position related to other transport outcomes (Mackett & Thoreau, 2015).

Finally, the research by Schwanen et al. (2015) attempts at pushing forward current understandings of the links between transport disadvantage and social exclusion using the concept of social capital as a mediating agent to better understand the interactions between disadvantage and exclusion. This paper builds on an extensive literature review that spans social theories related to mobility and different interpretations of social capital from sociology, human geography, and other disciplines. In the paper, the authors approach all concepts as complex interrelated processes from different entry points, providing a valuable discussion on the notion of causality, leaving more questions than answers and calling for a structured research undertake that can explore this issues more thoroughly in both the Global North and the Global South (Schwanen et al., 2015).

2.4 A conceptual argumentation: Dialogue between approaches

A growing awareness of social issues in urban transport has influenced policy and practice especially in industrialised countries since the late 1990s. However, this has not led to structural or permanent changes in policy, with exception of some cases in northern Europe. One of the main reasons behind the limited incorporation of social issues to mainstream approaches to urban transport planning is that transport has been treated

as a special issue in disciplines addressing it from the social sciences. This is partly due to the path-dependency¹² nature of much of urban transport education and practice that emphasises on concepts and methods such as those described in sections 2.1 and 2.2 (Goodstein, 1995; Dodson et al., 2006). This has led to a disconnection between non-conventional advances in transport and mainstream curriculums of disciplines related to urban studies. If it is true that professionals and students addressing transport are in a better position to discover and to incorporate in their practice the social dimensions of mobility, it is also common to find students and professionals from the social sciences addressing the urban for whom transport is not a familiar subject. These tendencies can be linked to the early development of urban transport planning both from technocratic and social approaches, and the high influence of road engineering and highway design on the UTP in the late Twentieth Century.

The challenge for integration of mainstream approaches to urban transport planning and theories concerning the social dimensions of transport interventions in developing countries requires more emphasis on the international and interdisciplinary dialogues on urban development. On the one hand, the marked separation between disciplines addressing transport-related issues led to parallel development of different approaches to the same issues during the decades between the 1950s and the late 1980s. On the other hand, different interests and available evidence and tools for planning may influence the planning process in various ways as identified by Dimitriou (1992), which often translates into the specialization of practitioners of different disciplines on different stages of the transport planning process (e.g. traffic engineers concerned with modelling, and economists, sociologists and environmentalists with evaluation). This

¹² *Understood as the continued practice based on historically consolidated and generally accepted principles, techniques and paradigms.*

suggests a need, particularly in the developing world, to overcome the fragmentation in the planning process and develop a framework that can encompass the different dimensions of transport and urban development in all its stages.

In line with the literature reviewed along this chapter, I argue that this challenge needs to be addressed through a multi-perspective analysis of the planning process and the social consequences at the local and metropolitan scales of a developing city. In this regard, it becomes relevant to understand the context of analysis which ultimately defines and determines practices of mobility. Priorities in policy and planning approaches may change to respond to the most immediate barriers to economic development, which constrains further the environment for development of social-influenced transport development policies.

Such context, in line with the ideas of the mobilities paradigm, is determined by human and non-human factors, which require interpretations from both mainstream infrastructure and service planning and social research to understand the interactions between people and means of mobility. The non-human dimension of transport provision is inextricably linked to the geographies in the planning process, which will not only determine the structures of networks and services but also the scales and interactions involved in the decision-making processes of setting goals and defining policies. In contrast, the human factor is determined by people and their interactions with the non-human elements of the transport network, as well as the social consequences of these decisions. This becomes an iterative process that requires both top-down and bottom-up approaches to travel behaviour, urban transport planning, and the institutional and political dimension of urban development policy in developing countries.

Only through an exploration of the spatial, social, economic, and institutional spheres that influence transport provision, it is possible to understand and address social dynamics in areas of difficult physical access and complex social tensions. The following sections propose a

framework that attempts to draw connections between the mainstream Western planning approaches governing urban transport planning, and its social consequences, particularly social exclusion. The thesis will build on this framework to provide a critical examination of the reality of a (largely unplanned) and fragmented development of the urban and transport systems and the application of methods and analyses from the social sciences that seek to contribute to the apparently missing elements in the provision of urban transport to the case of Soacha.

2.5 Splintering urbanism as a framework for the analysis of transport provision in peripheral urban areas

The notion of a networked society developed by Castells (2000) is a good starting point for introducing the applicability of the splintering urbanism thesis (Graham & Marvin, 2001) to the analysis of transport provision in peripheral urban areas. From a geographical perspective, modern urban societies can be interpreted in a comprehensive, yet very simplified manner, as a set of flows and networks (Levy, 1999; Castells, 2001; Lussault, 2007). In these networked spaces, flows can be understood as the movements and exchanges between spatial, social and economic positions within different systems of the social, while networks correspond to the material base of such flows (Castells, 2001). For these movements and exchanges to take place, a series of conduits comprised by technological networks of communication and transport are required, making uneven access to transport networks a source of disparities between social groups (Manderscheid, 2009). This definition of urban spaces as networks gives social relevance to the unequal distribution of material infrastructures for transport and communication as these contribute to the definition of patterns of movement of people, goods and information (Ohnmacht, Maksim, & Bergman, 2009). Urban planning and provision of transport networks translate into forces that can either moderate or aggravate social inequalities and inequities by enhancing or restricting accessibility (Manderscheid & Bergman, 2008). Travel

expenditure depends on the number of connections needed to access relevant opportunities, which are in turn reliant on networks of infrastructure, communications and technology.

Graham and Marvin (2001) interpret these networks as techno-economic constructs arising from social and historical processes, and highlight the mutual relationship between the development of networks and urban spaces (Zérah, 2007). As urban structures develop and become more complex, the supply of transport infrastructure tends to follow concentration of activities, wealth and power within urban spaces. The splintering urbanism thesis (SU) responds to what Graham and Marvin describe as an urgent need for developing a more robust, comprehensive approach to the understanding of “the changing relations between contemporary cities, infrastructure networks and technological mobilities” (2001, p 33).

In rapidly growing cities utility and communication infrastructures can become instruments of production and reproduction of social and spatial inequalities. As urban areas grow and develop and capital seeks more advantageous conditions for its reproduction, processes of structuring and re-structuring of networks of opportunities arise. In this context, wealthier groups are able to segregate themselves in premium nodes of well-connected networks, accessing information, interacting socially and improving their levels of welfare. In contrast, more remote nodes, often concentrating low-income populations, are simultaneously excluded as a result of the discontinuity of links and services and a restricted capacity to interact with the city. This suggests a central role of material infrastructures for mobility in enabling physical access to the city by the poor and thus help reduce social exclusion.

The core of the SU argument is that this dialectical relationship is currently undergoing structural changes through a “(...) process of ‘unbundling’ and ‘splintering’ the diverse political and regulatory regimes that supported the roll-out of power, transport, communications, street and transport networks towards the rhetorical goal of standardised ubiquity” (Graham & Marvin,

2001, p. 382). Unbundling processes arising from reforms of the infrastructure sector sought economic efficiency instead of a reduction in social and spatial inequalities (Graham & Marvin, 2001). Moreover, through constant creation of premium developments that include among others gated communities, commercial complexes and high-tech economic clusters, the production of urban spaces is modified along with the provision of infrastructure, leading to increasing separation between socio-economic groups (Zérah, 2007). Premium networked spaces, as termed in Graham and Marvin's narrative, allow higher income groups to segregate themselves from the rest of the urban fabric while, paradoxically, remaining strongly connected to other premium spaces (Graham & Marvin, 2001). Differentiated mechanisms of infrastructure development not only allow the segregation of wealthier groups. They bypass less powerful groups generating inequalities in relation to the capacity to interact with the economic and social structure of the city (Graham & Marvin, 2001). Social groups lacking necessary resources and choice to be able to move become deprived from interacting with the whole extent of opportunities offered by society (Bauman, 2000; Zibechi, 2008).

The production of bypassing strategies in the process of infrastructure provision makes SU a potentially useful framework for studying transport planning and delivery in segregated nodes of the networked society. Increasing gaps between connected and disconnected people lead to the "poverty of connections" (Graham & Marvin, 2001, p. 288), or transport poverty, described earlier in this chapter. In this process of production and reproduction of urban spaces "whereas the connectivities of central nodes in space continue to increase, less profitable areas and groups between the nodes and hubs tend to get increasingly disconnected, bypassed by infrastructure and socio-cultural investment" (Ohnmacht, Maksim, & Bergman., 2009, p. 31). Thus, the cycle of segregation and spatial concentration of opportunities is strengthened, increasingly representing a barrier for less powerful groups to interact with the rest of society. Understanding the causes and consequences of this type of exclusion

becomes central to transport planning. Limited provision of infrastructure to specific groups in society has serious implications in terms of transport-related social exclusion as introduced in Chapters 1 and 2, which involves spatial, political, personal and societal disadvantages that can be aggravated by poverty and in turn help deepen it (Kenyon, Lyons, & Rafferty, 2002).

Transport-related social exclusion derives from the insufficiency or inexistence of adequate means to travel (Kenyon, Lyons, & Rafferty, 2002). According to Grieco (2006), people that experience conditions of exclusion see their travel choice removed as a consequence of an urban environment built around the notion of high mobility. If social exclusion is understood as the combination of a set of social problems related to social fragmentation, limited access to networks of connectivity can be interpreted as one of such social problems, which limits participation in normal processes of society (Burchardt, 1999; Witter, 2010).

Graham and Marvin's framework is useful in approaching the issue of limited connectivity in urban contexts marked by centralisation and spatial segregation. It relates to relevant transport paradigms and provides a socially-informed interpretation of infrastructure networks, helping to identify on-going processes in dynamic cities. Graham and Marvin's interpretation relates well to the weakness of regulation and policies of privatization and provision of infrastructure and services that may lead to an increase in inequalities and the exclusion of specific socio-demographic groups (Fernández-Maldonado, 2008).

Some limitations of Graham and Marvin's thesis become apparent when testing its claims in the context of (1) cities in developing countries, and (2) groups who are spatially segregated based on their poverty as opposed to their wealth. As Coutard (2002) highlights, this theory does not allow for specificity of each infrastructure sector. Furthermore, a premise of the SU thesis is that observable changes produce a similar mismatch between globally connected spaces and bypassed areas. There is a symmetry

hypothesis that needs to be controlled for. However, considering the social and spatial stratification and segregation of the case study in the present research it can be argued that the SU thesis would seem to help explain the consolidation of networks in the most profitable areas and the lack of investment in less-attractive and influential neighbourhoods.

One of the main critiques of recent developments regarding splintering urbanism is that it cannot be taken as a general, universal, thesis (Coutard, 2008). Recent research suggests that some of the principles related to the drivers of discriminatory and socially regressive patterns of provision of networks of services and infrastructure have value as a framework for understanding contemporary urban issues (Coutard, 2008; Zérah, 2008; Odendaal, 2011; Furlong, 2014). In most cases, research on urban networks and their fragmentation adopt case study methodologies to confront the principles of the SU theory with local realities to provide a critique on the main drivers of differentiation in the delivery of infrastructure and services in different urban contexts such as Jakarta, Mumbai, Cape Town and eastern Germany, among others (see Jaglin, 2008; Moss, 2008; Kooy & Bakker, 2008). The main contribution of these research is to reinforcing of the need for reinterpreting the principles outlined by Graham and Marvin (2001) and to question the validity of postcolonial assumptions and neoliberal thinking, emphasising on structural inequalities and the fragmentation of urban networks.

Other research such as Frith's (2012) paper on the links between physical and virtual mobility and the splintering of space, seeks to bring some of the ideas of Graham and Marvin (2001) into contemporary concerns related to information and communication technologies and their role in the networked society. Something similar happens with other recent studies focusing on critical urban theory (see Brenner, Madden, & Wachsmuth, 2011; McFarlane, 2011), where a shift from splintering urbanism to assemblage urbanism is proposed. In this interpretation, urban spaces are conceptualised as a continuous, mobile, unequal, and changing process of

dwelling, constituting an alternative to the idea of a fragmenting networks to rather propose one of continuous construction. These theorisations reflect a constantly evolving field of debate where researchers from different disciplines are continuously devising new ways to understand complex urban phenomena. However, they are also a reflection of the validity of many of the postulates of influential theories such as splintering urbanism, as well as of a need for flexibility and recognition of local realities in their interpretation. This context gives appeal to Graham and Marvin's (2001) idea for the development of this research as it constitutes an opportunity to contribute to current international debates in disciplines such as urban geography, urban studies and planning, while also testing the applicability of this framework in the traditionally isolationist transport sector and transport studies. The following section attempts at grounding these objectives in relation to the general features of the case study and relevant regional contextual features in order to propose a framework of splintering urbanism applicable to this thesis.

2.5.1. A splintering urbanism interpretation for Bogotá, Soacha and Cazucá

The State has the responsibility to provide an ubiquitous coverage of infrastructure and connectivity, which aligns with the idea of the 'modern infrastructure ideal' in the SU Theory. In the Global South, transport infrastructure and services are still largely within the remit of government, with the responsibility of design, planning, and -to a large extent- delivering, infrastructure. In the Colombian Political Constitution, it is consigned as a primary duty of the State to guarantee equal access to the opportunities and services necessary to live a full life, providing the necessary mechanisms required to attain and maintain this access (Government of Colombia, 1991). As it has the responsibility of steering and sustaining development, it is the State who ultimately determines the distribution of (basic) networks of connectivity. Graham and Marvin (2001) also refer to a

set of powerful factors that challenge this 'modern infrastructure ideal', which include changes in the political economies of urban infrastructure development and its governance; neoliberalism; economic integration, open competition and imperatives of global-local connectivity; the development of infrastructural consumerism; the collapse of the comprehensive ideal number planning; new urban landscapes; and new structures of feeling (Graham and Marvin, 2001; Coutard, 2008). It ought to be recognised that not all these changes are applicable to cities in the Global South, where some authors have challenged the idea of this universalisation of infrastructure provision (Coutard, 2008; Jain, 2008; Parnell, 2014; Furlong, 2014). However, one of the main governance and political economy challenges in many contexts in the global South was the decentralisation of power and transference of responsibilities for urban infrastructure development, including transport, to the local government (Prud'homme, 1995; Barter, 1998). What splintering urbanism refers to as the 'unbundling' of infrastructure that results from the influence of powerful actors and structural drivers such as privatisation and the concentration of wealth (Graham and Marvin, 2001) is clearly observed in the context of transport infrastructure and services. Both the 'bypassing strategies' and production of 'premium networked spaces' in the SU theory is a result not only of the unequal distribution of wealth and power and space, but of a traditional planning process that prioritises the connectivity of areas with higher attractiveness as a result of the deeply rooted principles of utilitarianism, efficiency and economic growth in mainstream planning approaches such as the UTP (Levy, 2013). The combination of cumulative and self-reinforcing social, economic, and spatial inequalities with a planning system underpinned by "neoclassical economic concepts, focusing upon the representation of people as rational choice makers" (Avineri, 2012, p. 513) creates a self-reinforcing cycle of accumulation of attractiveness and improvements in connectivity, while simultaneously -if not entirely-, bypassing or giving less priority to areas of low-power and attractiveness.

This is probably the part of the splintering urbanism theory that seems to fit best with the Bogotá-Soacha conurbation. As it will be shown in chapter 3 and it was introduced in chapter 1, explicit social and spatial inequalities between Bogotá and Soacha are partly a consequence of a traditional approach to transport infrastructure planning, concentration of attractiveness at the city centre and other areas of concentration of high-income population, and the clash of jurisdictions and mismatches in governance between the two municipalities that constrained the seamless integration of infrastructure networks. Splintering urbanism also introduces a relevant discussion regarding power and influence, and the emergence of forms of resistance from communities and public authorities confronted with these splintering processes (Graham and Marvin, 2001). However, the theory is limited in its interpretation of such forms of resistance. In this regard, when the idea of resistance is linked with long-standing theories in urban and available studies about informality (See Chambers, 2002; Roy, 2005) then splintering urbanism can also become a theoretical lens through which understand the emergence of informal ways of connectivity in bypassed nodes such as Cazucá. Figure 2.3 shows the main elements involved in the interpretation of splintering urbanism adopted in this research. The framework reads SU as a self-reinforcing process of differentiated provision of transport networks influenced by structures of government and systems of planning in place, as well as the configuration of the city simplified in terms of centralisation of opportunities and localisation of power and wealth. The framework presented in Figure 2.3 also connects social exclusion as both a product and a contributing factor to splintering urbanism related to transport, which supports the selection of a framework for social exclusion that interprets it as a set of consequences of larger transport and social disadvantages.

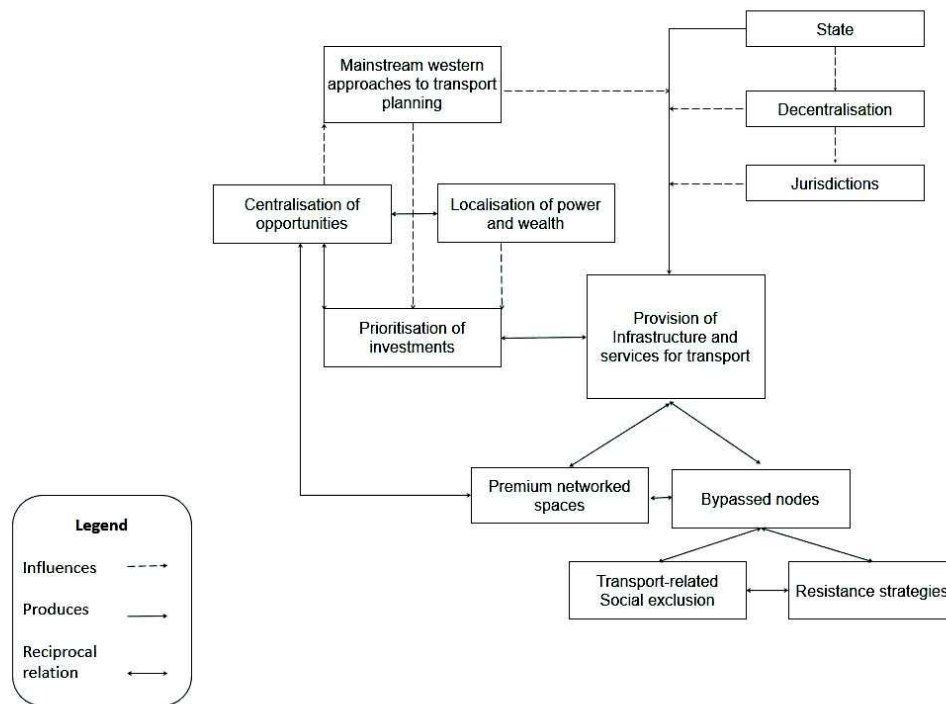


Figure 2.2 The splintering urbanism process related to transport
Source: Own elaboration

2.6 Making the links between splintering urbanism and social exclusion

The processes of delivery of transport infrastructure and services and their social consequences are closely connected with the discussions about the limitations of mainstream Western transport planning. It has been discussed that social exclusion can either be interpreted from the literature as the process that leads to people not being able to fully participate in society or as the resulting constraints to interact with the opportunities and connections in an urban space (Lucas, 2012). This is the entry point to link the theory of splintering urbanism with the interpretation of social exclusion provided by Church, Frost and Sullivan (2001). In their study in London, Church, Frost, and Sullivan, 2000, construct a framework that identifies the structuring factors behind potential exclusion stemming for transport, while discussing some of the consequences associated with such factors. This

framework has been reinterpreted in subsequent studies as shown in section 2.3.1 and sparked research focusing on one or more specific dimensions. However, similarly to splintering urbanism, the literature has consistently maintained most general principles of the framework unchallenged. This is one of the strongest appeals of both frameworks as it becomes an opportunity to test the 'universality' of such frameworks, while pushing forward existing knowledge on how they can be used for understanding transport-related inequities and weaknesses in its delivery and planning.

I utilised Church, Frost and Sullivan's (2001) framework for transport-related social exclusion to deconstruct the links between the dynamics of the splintering of networks of connectivity and the different dimensions in which people at bypassed nodes experience and confront social exclusion. To truly test and reinterpret this framework, as well as making it consistent with standard case study approaches used in the literature for exploring splintering urbanism, the research adopts a qualitative method for producing and analysing the evidence. As argued in section 2.4, most contemporary research on social exclusion related to transport adopt a quantitative approach to explore travel patterns and link them with indicators of participation in society or other relevant socioeconomic and geographical data. The tendency from transport studies to the analysis of social issues such as equity, exclusion and disadvantage related to transport have concentrated mainly on the production of evidence and the statistical representativeness of the evidence, partly to fit with the technocratic nature of transport planning. Qualitative analysis becomes important in this context as the principles of planning and research of structural issues related to transport have not been examined in detail. By analysing a smaller sample but the rather richer information obtainable from in-depth interviews, it is possible to provide valuable material related to the critical interpretation of concepts such as splintering urbanism and social exclusion and their translation in cases such as Soacha.

As shown earlier in this chapter, the various dimensions of social exclusion in the work of Church, Frost, and Sullivan (2000) engage with transport-related constraints for participation in society that span from location to social identities and positions. When linked with the patterns of urban development of cities in Latin America in other similar contexts in the developing world, it can be argued that social exclusion related to transport being largely a consequence from, and reinforces the main drivers of, the localisation of splintering urbanism. Figure 2.3 summarises some of the links between the two frameworks building on the previously discussed literature.

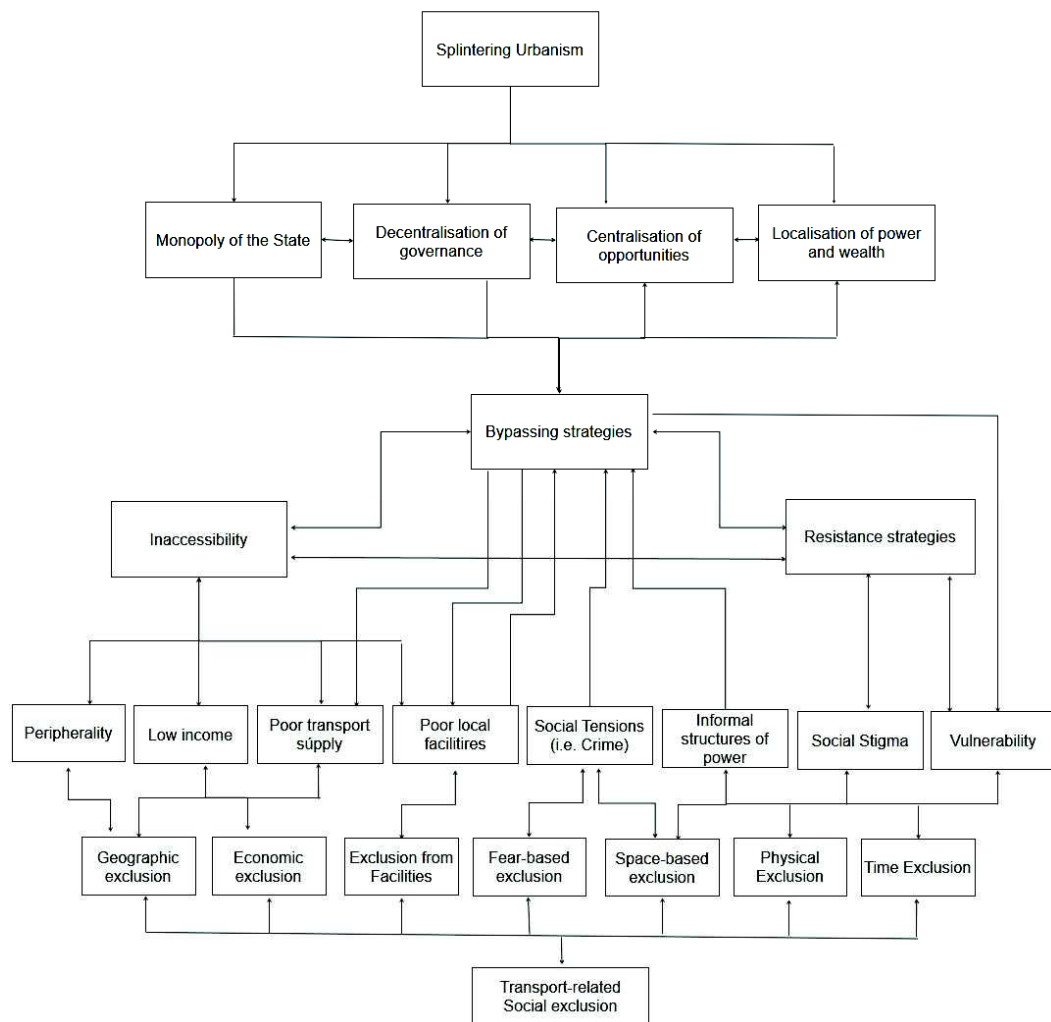


Figure 2.3 Drawing the links between splintering urbanism and transport-related social exclusion
Source: Own elaboration

This thesis argues that there is a strong interrelation between splintering urbanism and social exclusion. As shown in figure 2.3 some of the dimensions of social exclusion identified by Church, Frost, and Sullivan, have a direct bidirectional relationship with the practices of splintering urbanism related to transport, while others have either a unidirectional or indirect relationship with it. On the one hand, dimensions such as the geographical, cite explicitly peripherality, poor transport provision, and the resulting inaccessibility as one primary factor of transport-related social exclusion (Church, Frost & Sullivan, 2001). From a splintering urbanism perspective, it can be argued that this dimension is a direct consequence of both the concentration of wealth in attractiveness in specific areas that make unaffordable for the poor to locate near employment centres, and the technocratic approach of mainstream transport planning that gives precedence to the connectivity of this high-value areas while bypassing peripheral neighbourhoods such as Cazucá. The reinforcing cycle of spatial concentration of wealth and attractiveness and the development of high-quality transport networks and services supplying these areas produces barriers for affordability for low-income groups that we sought to informal dwellings in the periphery to have access to the opportunities in the city. In this regard, splintering becomes an explanatory factor of geographical exclusion and the peripheral location of socially and transport disadvantage populations in the periphery reinforces its position as a low-power and influential node in the network leading to further bypassing. Other dimensions that can be interrelated with splintering urbanism in the framework of Church, Frost, and Sullivan (2000) are exclusion from facilities, economic, physical, and space exclusion. The above dimensions can be argued to be either a by-product of the larger dynamics that involve splintering urbanism, or a direct consequence of the disconnection from the networks of connectivity that come out of it.

On the one hand, it can be argued that bypassed areas by infrastructure provision be also bypassed by investment in urban amenities, facilities, and services. This is particularly the case for informal settlements, which is an

area often forgotten from mainstream planning perspectives. On the other hand, despite being also a responsibility of the State, privatisation of services such as health and education can lead to limited local provision of the services in low-income informal neighbourhoods. The connection between splintering urbanism and most dimensions of social exclusion is accessibility or the lack thereof. In the case of economic and physical exclusion, the combined effect of social and spatial segregation and the bypassing and lack of integration with the rest of the transport network increases costs of travel and reduces available alternatives to travel for people with physical or cognitive disabilities via an increasing number of transfers to reach the core city due to poor supply, coverage, and integration of transport services. In this regard, another connection between the two frameworks is the notion of informality as a strategy of resistance to splintering, where self-help provision of informal transport and community-based initiatives for building infrastructure help bypassed population overcoming physical obstacles for local mobility.

The fear and spatial dimensions of transport-related social exclusion have a reciprocal relation with splintering urbanism. First, segregation and disconnection facilitate the localisation and concentration of crime and insecurity. These social tensions and vulnerabilities in turn reinforce social stigmas and negative external perceptions that decrease further the attractiveness of bypassed areas. This has direct implications for exclusion related to the fear to crime. It also facilitates the devolution of power and control of spaces. The limited State presence materialised in lack of investment, connectivity, and availability of government facilities in peripheral neighbourhoods lead to the reconfiguration of structures of power to local leaders, civil society organisations, but also criminal groups, which may produce exclusion from spaces of the local scale. These elements are usually overlooked by standard quantitative approaches to the analysis of accessibility and transport disadvantage for which it is an added justification to the adoption of a qualitative approach. Finally, dimensions such as time deprivation and physical exclusion which tend to

manifest on the most socially vulnerable, become a cumulative consequence of all the direct products and by-products of splintering urbanism and its interaction with other dimensions of social exclusion. Exclusion experienced by single-parent households, women not at work, the elderly and people with disabilities as suggested by Church, frost, and Sullivan (2001), are expected to be more severe in contexts where social tensions, informality, adverse topography and geographies compound levels of exclusion for different social groups and individuals.

The objective of this proposed integrated framework to link splintering urbanism and social exclusion aims at demonstrating, with support of qualitative empirical evidence, that these two issues are mutually reinforcing processes. Furthermore, the translation of both frameworks from western planning and transport studies into a case such as the Bogotá-Soacha conurbation seeks to test their effectiveness in the global South.

3. Placing urban transport in the local context: Rationale behind the selection of the Bogotá region

When approaching human affairs, predictive theories and universals are difficult to find, giving value to context-dependent knowledge (Flyvbjerg, 2006). The analysis of specific cases "...is important for the development of a nuanced view of reality, including the view that human behaviour cannot be meaningfully understood as simply the rule governed acts found at the lowest levels of the learning process and in much theory" Flyvbjerg (2006, p. 223).

This thesis is structured around the objective of testing 'universal' frameworks from Western realities for understanding urban fragmentation and social exclusion related to transport in a context where underlying fragmentation, social and spatial inequalities, and frameworks for governance and planning may reinforce the materialisation of some of the principles in the general postulates showcased in sections 2.4. to 2.6. A case study methodology responds well to this type of objective and therefore the selection of the case is a central part of the methodology.

To explore the links between transport planning, splintering urbanism, and social exclusion, the research applies the frameworks described in the previous chapter to the cases of Bogotá and Soacha, Colombia. This is an information-oriented selection of case study (Ragin & Becker, 1992), where pre-existing knowledge regarding the features of the Bogotá-Soacha informed their selection for the analysis of urban fragmentation and transport-related social exclusion. This type of case choice allows to achieve information that permits characterising a specially challenging situation related to the characteristics of governance in the city-region, while also allowing to analyse the significance of various circumstances for case process and outcome. In turn, it could also be argued that Cazucá has the potential to become a paradigmatic case that provides information to

establish a domain of what social exclusion and splintering urbanism mean for similar contexts in the Global South. These ideas will be reflected upon in the conclusion of the thesis.

In this regard, it is relevant to examine the characteristics of the case study before dwelling into the specific methods for data collection and analysis selected. The research undertakes analyses at the metropolitan and municipal level, and in the form of case studies of selected informal neighbourhoods that are physically peripheral to both Soacha and Bogotá. Cazucá and the complex social, political and institutional interplay between Bogotá and Soacha involve governance, spatial, societal and technical issues at different scales that underpin the development of mobility strategies to and from Soacha and the localisation of splintering urbanism. A conventional analysis of travel patterns and demand/supply balances that builds on the kind of mainstream engineering techniques outlined in the previous chapter would require a considerable degree of simplification of these dimensions of the object of analysis, while limiting the depth of the analysis of local dynamics in relation to the selected conceptual frameworks outlined in the previous chapter. The objectives proposed for this research thus require a combination of transport information with documentary analysis and qualitative information may provide additional depth and detail to the understanding of localised dynamics of splintering and social exclusion.

Different elements played a role in the selection of the case study. The issue of transport has claimed a preferential position in the agenda of urban development both in Colombia and elsewhere, often focusing on technology and policy innovations in the provision of public transport services. Researching urban transport in the Colombian context is then pertinent insofar as the country has become an attractive cluster of 'best-practices' of top-down investments in infrastructure and transport management in the developing world.

However, as outlined in the previous chapters, the role of urban transport as a catalyser of social and economic development, as well as a potential source of social inequalities, has been much less researched than operational aspects governed by mainstream approaches. Given the particular characteristics of the case study, the research is also rooted on conditions of poverty and vulnerability in urban areas, on the processes of urban development and expansion, and informal urbanisation in the peripheries of large cities. In order to better understand the rationale behind, and pertinence of, the selection of the case study, it is necessary to place the issue of urban transport in the regional and local dynamics of urban development. This chapter expands on some of the issues introduced in Chapter 1 regarding urban development in Latin America and Colombia, as well as presents information on the Bogotá's capital region, the Bogotá-Soacha conurbation, and Soacha as a research setting. This information becomes relevant for the reader to become familiarized with the specificities of the case study, as the selection of the methodology incorporates specific considerations regarding such features.

3.1 Urban development in Latin America

According to the United Nations Economic Commission for Latin America and the Caribbean –ECLAC–, the region has experienced unprecedented urban growth in the past four decades, increasing from 56.4% of the population living in cities over 100,000 inhabitants in the late 1970s to 79.5% in 2008 (ECLAC, 2009). Rural-urban migrations, which is a factor of growth of urbanisation alongside net in-migration, net natural population growth and changes in administrative boundaries, were influenced by factors as the implementation of Import Substitution Industrialisation -ISI- policies¹³ in the 1970s and structural adjustments policies implemented in

¹³ *Import substitution industrialization (ISI) is a trade and economic policy started in the late 1930s that promoted replacement of foreign imports with local production. ISI runs under the logic that a country should try to reduce its foreign dependency through national manufacturing of industrialized products (Gerber, 2007).*

the 1980s. Such policies in countries like Colombia were also affected by internal conflicts and violence. According to Baer (1972) a widening in the rural-urban gap, although of a more economic than demographic nature, was experienced by Latin American cities as a result of ISI policies given their focus on modernisation of agriculture and incentives to urbanisation.

In the decades between 1950 and 1980, Latin American countries experienced large migrations from the countryside to rising urban agglomerations. Rapid increase in urban population, although far more stable nowadays than in the period before the structural reforms of the 1990s, had serious implications in relation to social exclusion, vulnerability and disorganised urban growth (Gilbert, 1996; Cohen, 2004; UN-HABITAT, 2012). This translates, in terms of transport development, in enormous challenges for the provision of accessibility to local services, urban amenities and work opportunities, as well as in limited empowerment of urban and peri-urban citizens to overcome increasing distances and physical challenges for interacting with the city (Keeling, 2004).

Several authors have argued that as a result of structural adjustment policies implemented in the 1990s quality of life in most major Latin American cities experienced a sharp decay in relation to the 1970s (Gilbert, 1996; Stiglitz, 2003; Rodrik, 2006). In Colombia, 78.5% of the population living in cities, and 18% lived in informal settlements in 2009 (ECLAC, 2009). Urban expansion in the last decades of the twentieth century led to an increase in socio-economic segregation as well as growing spatial segregation between wealthier and poorer households in cities where jobs and services tended to be physically concentrated close or in city business districts (Gomez et al., 2015). According to Clichevsky (2000), economic disparities led to marginality of specific social groups, which translates into a lack of public amenities, security, and conditions that worsen dependency on motorised transport. The Latin American city is characterised by deficits in urban infrastructure and public services that confront citizens with increasing levels of insecurity, both in relation to crime and road-related

hazards, and decreasing quality of the environment due to noise and air pollution. This aggravates spatial polarisation between high and low-income groups has more recently led to intensification in the development of gated communities for the elite and increase in the vulnerability of the poor in informal neighbourhoods (Caldeira, 2000).

Inappropriate land regulations, unclear institutional arrangements, inadequate enforcement, political corruption, changes in levels of poverty and extreme poverty¹⁴, and largely variable approaches to social housing from many Latin-American governments between the 1970s and 1990s increased the rhythm of development of informal housing in the region (Clichevsky, 2000; Gilbert, 2009). These developments were often located in the outskirts of already large cities, sometimes in neighbouring municipalities, generating processes of conurbation and urban expansion. Given conditions of higher affordability of informal settlements, the region witnessed an increase in illegal or unregulated developers that divided large areas of private land into plots that local migrants and new in-migrants to the cities bought and developed through self-help construction (Chant & McIlwaine, 2009; UN-HABITAT, 2012). Occupation of informal developments and low-cost housing in emergent neighbourhoods in growing cities was also incentivised by a growing demand for rental housing, particularly from poorest in-migrants, unable to locate in the city centres (Gilbert and Ward, 1982; Edwards, 1982). Renters frequently accounted for up to half of the total families in several low-income informal settlements in large cities in Latin America in the late 1970s, a phenomenon that persists in many informal neighbourhoods in the region today (Gilbert and Ward, 1982; UN-HABITAT, 2012). Rapid increase in population in informal neighbourhoods resulted in worsening of urban poverty and

¹⁴ According to data from the Inter-American Development Bank (Londono & Szekely, 1997), during the 1970s poverty experienced a sharp decay in most of the region. However, during the 1980s poverty rates increased, reaching over 34% of people experiencing moderate poverty and nearly 16% under extreme poverty. These numbers were reduced moderately during the 1990s.

vulnerability as informal housing for low-income communities is often characterised by generalised lack of infrastructure and sanitary facilities, and precariousness in construction materials and techniques.

Migration patterns identified above, in combination with a relatively weak local industry and specialised job markets in large cities, have another unintended effect on social inequalities and differences in access to opportunities for both low-income citizens and new migrants. The majority of the poor in large cities of Latin America resort to work in activities with variable or centralised locations, becoming inextricably reliant on motorised transport (Portes, 2005). In cities like Bogotá, activities like street-vending, occasional service provision, domestic services and construction work take place at multiple or variable locations, which in turn translates in larger travel expenditure from low-income areas, usually located in the city outskirts in comparisons with better-located areas and higher-qualified individuals with access to other opportunities. Economic activities of low-income populations are commonly managed informally, and are largely dependent on unqualified labour force. According to Perry (2007), about 57% of the employment in Latin-American cities is produced in the informal sector, becoming an attractive source of employment for poor in-migrants in large urban agglomerations in the region.

3.2 Colombia's capital region

In Colombia, migration patterns and social dynamics described above have been intensified by the effects of a long history of political confrontation and violence concentrated mostly in the rural areas. An internal conflict spanning several decades contributed to migration dynamics that, although much slower in recent decades, increased displacement of low-income in-migrants to informal settlements like the ones that pertain this research. Data from the Internal Displacement Monitoring Centre reveals that Colombia has the second largest population of internally displaced people (IDPs) in the world related to conflict and violence, with 5.7 million people

(IDMC, 2014), and is the only country in the Americas occupying the first place of the ranking along Syria, Nigeria, the Democratic Republic of Congo and Sudan. This has enormous implications in relation to the reproduction of vulnerability in urban areas. As the report identifies, “IDPs in urban settings tend to be unable to afford the cost of adequate housing, forcing them to occupy private and public property without permission” (IDMC, 2014, p. 13). In Colombia, this situation has persisted despite visible efforts from the government to address long-term impacts of displacement in the past years through transitional justice initiatives, social aid and development programmes.

3.2.1 Demography, administrative distribution and informal development

Government authorities in Colombia calculate that in the late 2000s immigration to Bogotá due to a combination of internally displaced population, education and economic migration represented over 300,000 people a year (Ramirez, Zuluaga, & Perilla, 2010). Between 1993 and 2009 the population in Bogotá grew from 5.03 to 7.6 million at an annual rate of 2.3%, becoming the fourth city in population in Latin America. With an urbanised area of 518 km², this has led to Bogotá becoming one of the densest cities in Latin-America with 13,500 inhabitants/km² compared even to larger cities like Sao Paulo, Lima and Mexico (9,000 inh/km², 11,750 inh/km², and 8,400 inh/km², respectively) (Parés-Ramos, Álvarez-Berríos, & Aide, 2013). In addition, social and economic dynamics at the local and regional level have influenced migration from Bogotá to other municipalities. Alfonso (2010) estimates that between 1993 and 2005 approximately 246,000 city inhabitants (4.2% of the population) moved from Bogotá to the suburbs, of both high and lower income following a trend that projections suggest will continue.

Recent regional studies show that population of adjacent municipalities grew twice as fast as Bogotá in the first decade of the 2000s (Secretaría Distrital de Planeación, 2009). The Capital Region, as is known locally, comprises the agglomeration of Bogotá DC (‘Capital District’) and its

surrounding municipalities. While no metropolitan area for Bogotá has been administratively constituted, the phenomenon of constant expansion and conurbation with neighbouring municipalities has led to attempts to define it at least in functional terms. As a result, depending on how the boundaries are traced the region can contain up to 19 adjacent municipalities with a functional, social and economic relationship with the capital city (Acevedo et al., 2012). Figure 3.1 shows the location of the Bogotá city-region in the regional context of Latin America.



Figure 3.1. Location of the Bogotá city-region

Source: Open street maps (2015)

Development of activities like manufacturing industry, construction and logistics around the region and the dynamics of urban growth of Bogotá and some of the municipalities that are closer to it have converged in processes of conurbation and suburbanization. This has generated a complex urban structure within a context of administrative decentralization (CCB, 2005a). According to data from the national population census, the strongest dynamics of conurbation and suburbanization take place between Bogotá and seven surrounding municipalities, including Soacha, which have been unofficially defined as the region's three rings as shown

in Figure 3.2. Other municipalities that have progressively strengthened their link with the city despite not showing yet clear spatial continuity have been assigned to a second ring in this practical definition of a city-region, and those with a weaker interaction with the city are assigned to a third ring (DNP, 2005).

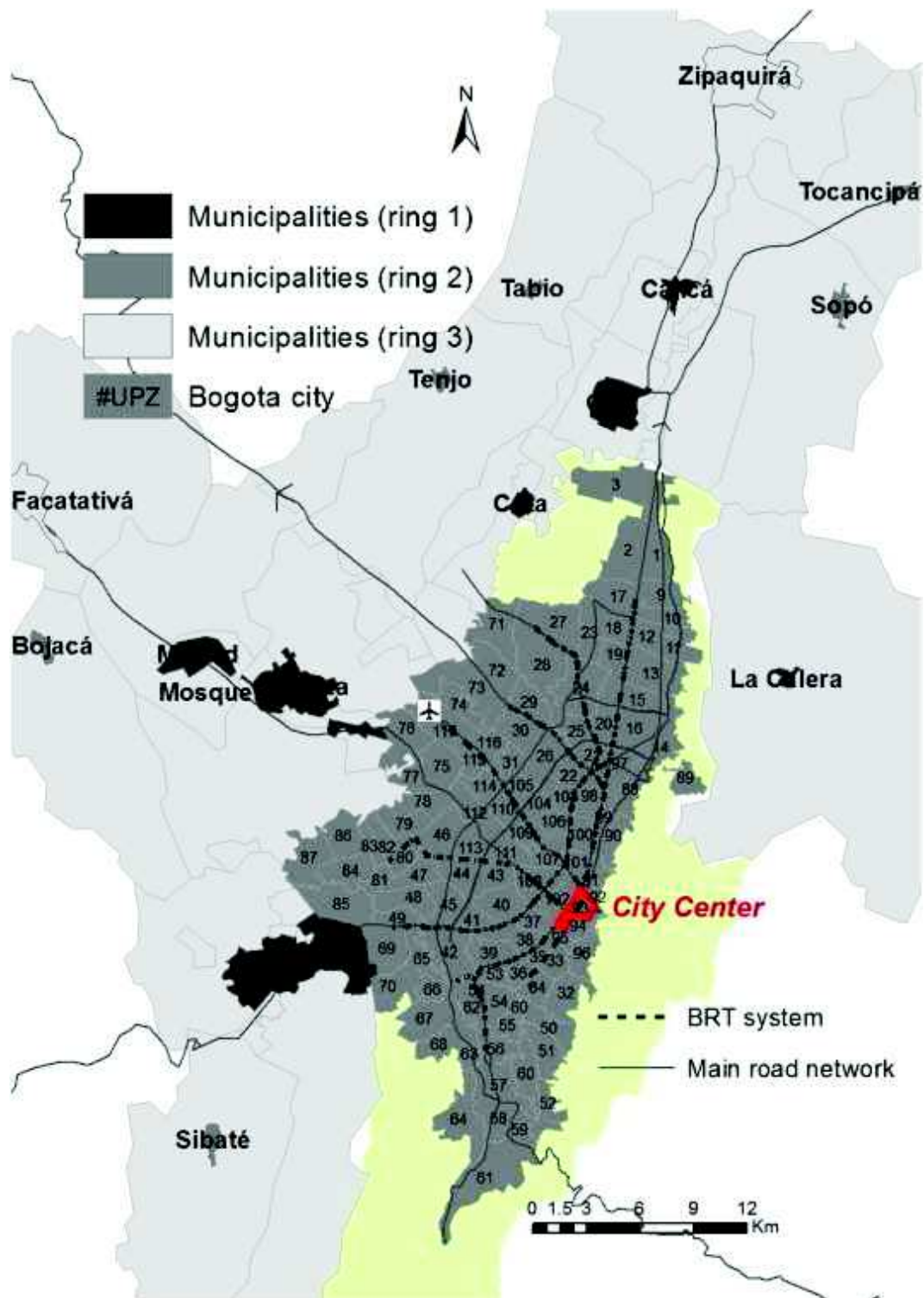


Figure 3.2 Municipalities in the Vicinity of Bogotá and in the department of Cundinamarca

Source: (Guzman, Oviedo, and Bocarejo, 2016)

Soacha plays a central role in the *departamento* (province) of Cundinamarca. Demographically, it is the largest urban area under the departamento's provincial jurisdiction being over three times larger than the second municipality in population size (see Table 3.1). A comparison between the two latest population censuses (1993 and 2005) shows that Soacha's population growth rate largely surpasses both Cundinamarca's and Colombia's. While the country's population grew at a rate of 1.88% per annum between 1993 and 2005 and Cundinamarca grew at an annual rate of 2.46%, Soacha's population grew at 4.56% per annum (DANE, 1993; DANE, 2005; UNDP, 2011). Population estimates for 2012 reveal that while Cundinamarca represents 5.49% of the national population, Soacha's population is 1.02% of Colombia's despite its territory (184,45 km²) being only 0.02% of the total territorial extension of the country (1,141,748 km²).

Different initiatives have been raised in the region in relation to the consolidation of a metropolitan area (MA) for Bogotá, of which Soacha is a main stakeholder. In this regard, seventeen municipalities have been considered to incorporate the MA of Bogotá as depicted in Table 3.1. Soacha currently represents over 18% of Cundinamarca's population, and 36% of what could constitute the metropolitan area, which places it at the centre of the region after Bogotá despite having only 6.4% of the city's total population. As a consequence, regardless of Bogotá's location at the centre of Cundinamarca, Soacha is one of the most relevant population centres in the region, requiring especial attention in relation to infrastructure investment, social welfare and productivity. This can also be linked with Bogotá's status as capital city, which places the city's government at the same level as departments, granting political, economic and financial independence from Cundinamarca.

Table 3.21 Population of the municipalities in the vicinity of Bogotá, 2005 - 2011

	2005	2008	2011	Annual Growth Rate 2005/2011	Share of the population in the Metropolitan Area ¹⁵	Share of the population of the Departamento
Soacha	398,295	433,992	466,216	2.66%	36.00%	18.10%
Facatativá	106,067	114,943	122,320	2.40%	9.50%	4.80%
Zipaquirá	100,038	107,918	114,161	2.23%	8.90%	4.50%
Chía	97,444	106,355	114,881	2.78%	8.80%	4.40%
Mosquera	63,584	68,891	74,654	2.71%	5.70%	2.90%
Madrid	61,599	67,042	71,564	2.53%	5.60%	2.80%
Funza	60,571	65,644	69,783	2.39%	5.40%	2.70%
Cajicá	44,721	48,817	52,244	2.63%	4.00%	2.00%
Sibaté	31,166	33,661	35,681	2.28%	2.80%	1.40%
Tocancipá	23,981	26,434	28,732	3.06%	2.20%	1.10%
La Calera	23,308	24,943	26,077	1.89%	2.10%	1.00%
Sopó	21,014	22,841	24,489	2.58%	1.90%	1.00%
Tabio	20,714	22,637	24,487	2.83%	1.90%	0.90%
Cota	18,093	21,377	22,879	4.06%	1.80%	0.90%
Tenjo	16,607	18,936	19,366	2.68%	1.60%	0.80%
Gachancipá	10,792	11,895	12,944	3.08%	1.00%	0.50%
Bojacá	8,788	9,653	10,433	2.90%	0.80%	0.40%
Metropolitan	1,106,782	1,205,979	1,290,911	2.60%	100.00%	50.20%
Cundinamarca	2,280,037	2,397,511	2,517,215	1.66%		100.00%
Bogotá	6,840,116	7,155,052	7,467,804	1.47%		
Colombia	42,888,592	44,450,260	46,043,696	1.19%		

Source: National Population Census (DANE), (2005) and DANE population estimates (2012)

Despite constant interactions between Bogotá and its surrounding municipalities in terms of displacements and conurbation, main centres of income-generating, commercial and social opportunities remain located

¹⁵ Percentage of the population of the metropolitan area and the department are calculated based on the average population year by year

¹⁶ According to the National Statistics Department (DANE, 2005), the Bogotá Metropolitan Area, understood by national statistics as a functional but not legal or administrative unit, is composed by the city of Bogotá and the municipalities of Soacha, Sibaté, La Calera, Sopó, Tocancipá, Gachancipá, Zipaquirá, Cajicá, Tabio, Chía, Tenjo, Cota, Funza, Mosquera, Madrid, Facatativá and Bojacá

either at, or in close proximity to, higher-income areas in the east and north-east of the city. In contrast, low-income locals and in-migrants have been pushed toward the peripheries, locating progressively from southern and south-eastern neighbourhoods to the Western corners and adjacent municipalities. As shown in Figure 3.3, concentration of settlements that originated as informal neighbourhoods in and around Bogotá between 1950 and 2000 suggests patterns of displacement toward the southern borders. These initial dynamics of occupation have progressively led to the saturation of Bogotá southern territories, leading to Soacha's rapid occupation and concentration of informal settlements as observable today (Dávila et al., 2006).

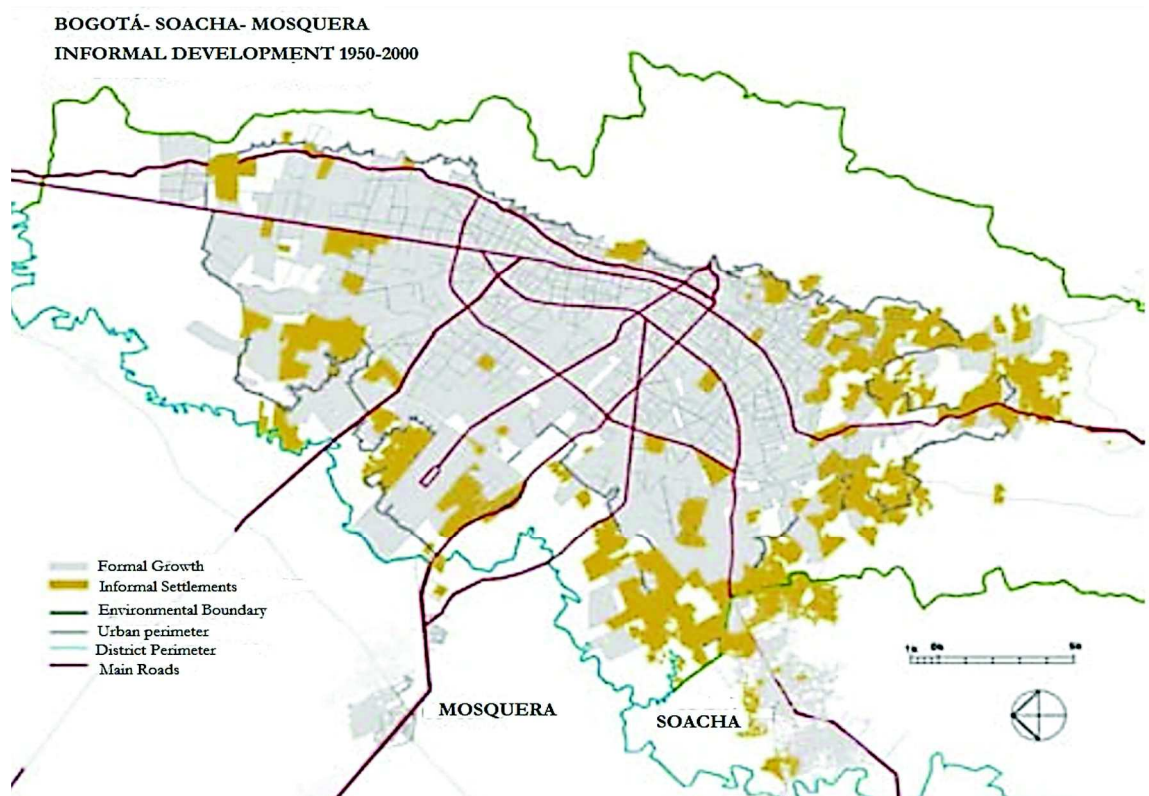


Figure 3.3 Areas of concentration of informal developments in the Bogotá city-region 1950-2000

Source: Dávila et al. (2006)

Low-income population influxes both from Bogotá and other parts of the country have contributed to the demographic distribution and socioeconomic structure of Soacha. According to data from the latest

national population census, over 325,000 people living in Soacha were born in a different municipality, leaving only about 18% of the population being original “soachunos” for its demonism in Spanish (see Figure 3.4).

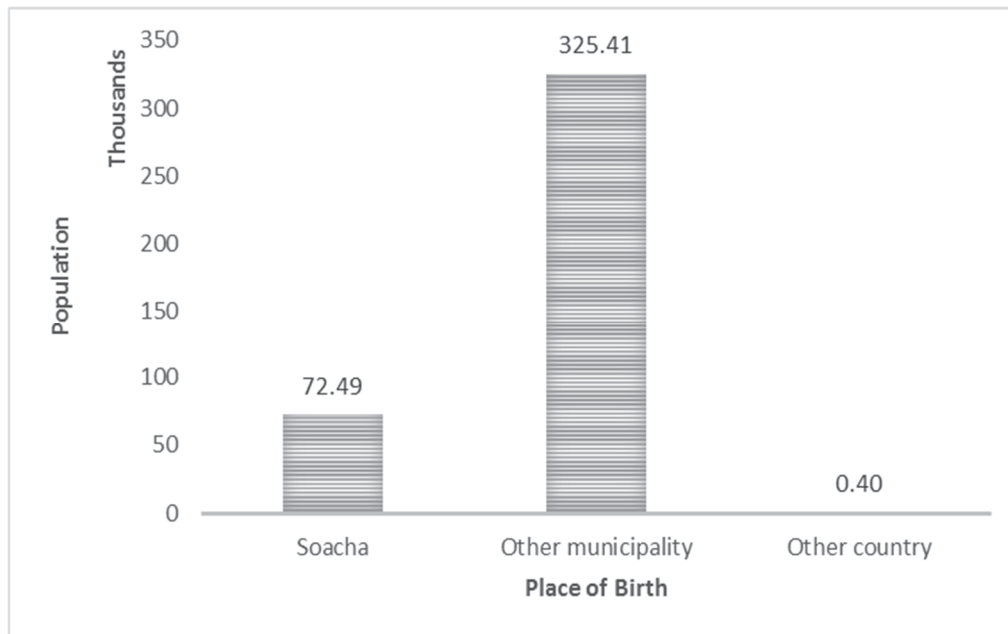


Figure 3.4 Distribution of the population in Soacha according to place of birth (in thousands), 2005

Source: National Population Census, DANE (2005)

This tendency has continued during the years that followed the development of the latest population census. According to figures from DANE (2010), 50,263 people migrated to Soacha from other departments (including Bogotá) between 2005 and 2010. From these in-migrants, 65.77% moved from Bogotá to Soacha, including both voluntary in-migration and displacement coerced by criminal groups operating in rural and urban areas (UNDP, 2011). In addition, about 100,000 people in Cundinamarca in-migrated within the department between 2005 and 2011, of which Soacha received approximately 52% (Cundinamarca, 2011).

As shown in Figure 3.5, the most relevant reason for people moving to Soacha from other municipalities are family affairs. However, there is a considerable portion of people changing their original place of residence in search for better access to work and education (over 16%), and a

meaningful percentage (22.4%) that did not specify a reason. Considering the political instability at the time of the census and the conditions of violence and crime in the area and the country overall, it would not be surprising for at least some people in this 22.4% to have reasons related with sensitive issues such as forced displacement and crime. On top of this, there is a 4.3% that specified having to change place of residence as a result of threats to their lives.

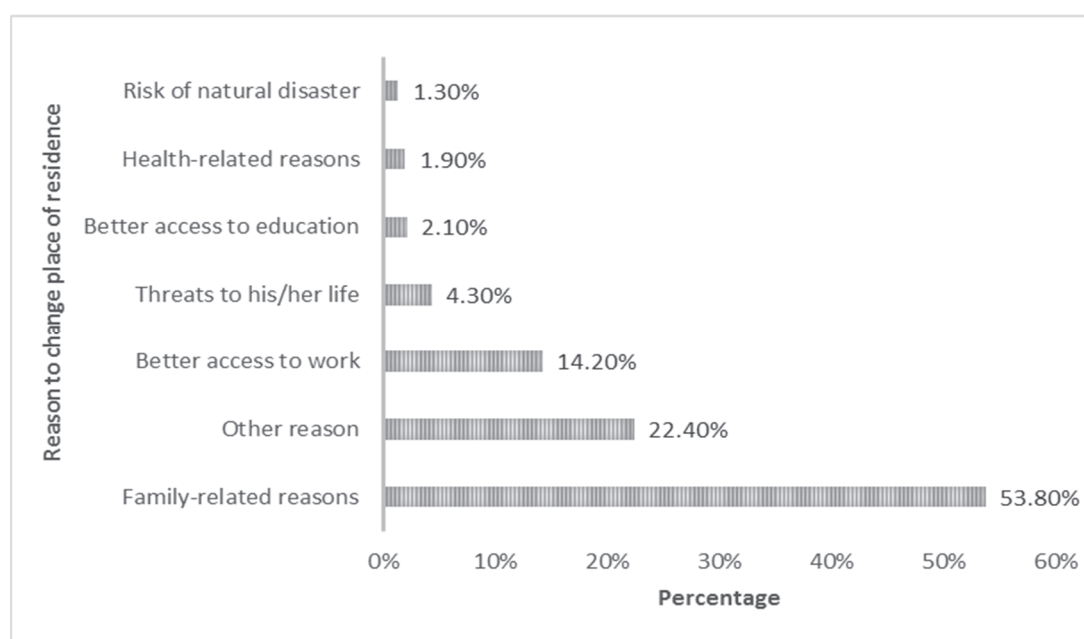


Figure 3.5 Reasons for having changed place of residence in the past five years, Soacha, 2005

Source: National Population Census, DANE (2005)

Statistics from the National Department for Social Prosperity –DPS- of the national government (DPS, 2011) accounts for 34,791 people migrating to Soacha between 1999 and 2010 as a result of forced displacements. As shown in Figure 3.6, two peaks can be identified. This reflects a meaningful number of people in conditions of social vulnerability living in Soacha, which poses challenges in relation to implementation of social aid programmes, generation of employment, food security and urban development among others (UNDP, 2011).

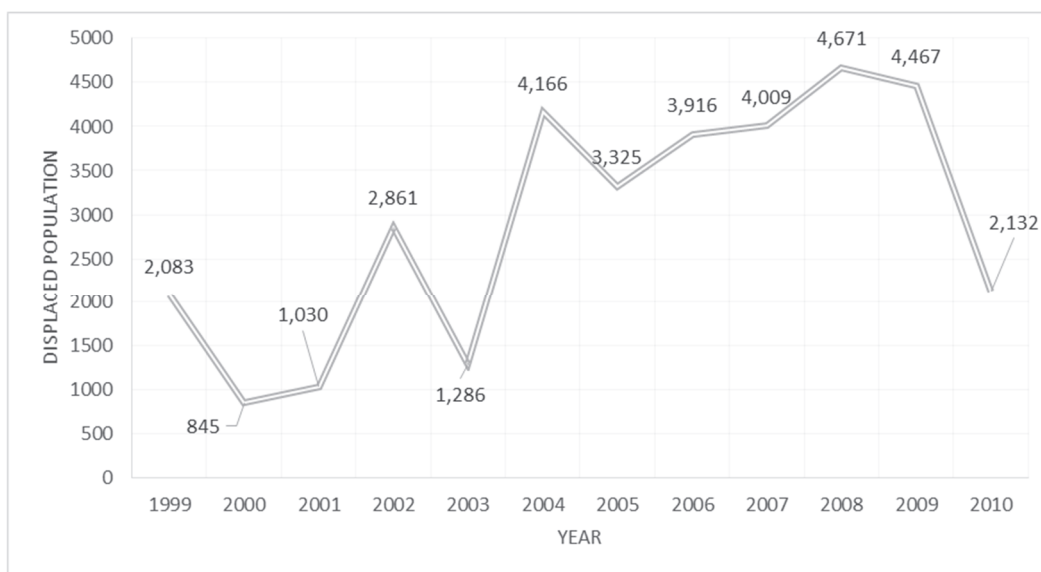


Figure 3.6 Forcedly displaced population, Soacha, 1999 - 2010

Source: UNDP (2011)

Despite social, economic and political conditions fostering internal migrations in Colombia, evidence suggests that people living in Soacha after in-migrating from other parts of the country tend to stay in the municipality. Data from the population census show that 84% of the population surveyed lived in Soacha during the last 5 years before the survey (DANE, 2005). This suggests that despite in-migration tendencies and a socio-culturally diverse population, current residents of the municipality are likely to build a life in Soacha. The former can be linked, on the one hand, with social and economic constraints to relocate; and on the other hand, to accumulation of assets and consolidation of social capital in the municipality. Detailed analysis of information related to the perception of residents of Soacha of their location are included in Chapter 8.

The demand for formal affordable housing in the region has largely surpassed supply, leaving room for informal developments that have stepped in to fill the gap. Individual plots of land are sold in areas where building is either restricted or forbidden and with little or no suitable infrastructure for transport and utilities. As part of the process of informal occupation, families build their homes through self-help housing, creating

unauthorised connections to nearby electric and water lines, if available. This, considering that mainstream town planning does not recognise informal settlements in the process of provision of public utilities and infrastructure networks unless they have attained 'critical mass' that enables them to exert enough political pressure to have their neighbourhood 'legalised' (Bocarejo & Velasquez, 2012). The increase in size and political significance of segregated nodes influences local authorities to provide connections to utilities and build other infrastructure like sewerage, pavements, roads and street lighting.

Socio-demographic and urban development conditions in the capital region have led to consolidation of low-income settlements for the poor and an increasing deficit in formal affordable housing. Data from Metrovivienda¹⁷ for 2006 calculated a housing deficit for Bogotá of around 600,000 units. Molina (2007) estimates that 20% of households facing accommodation problems in the city live in unsuitable housing, while the rest lacks housing. Urban development in Bogotá has been strongly related to informal housing particularly in the south and west corners of the city. According to Rueda (2006), between 1938 and 1951 approximately 50% of new housing development in the city took place in areas restricted for construction due to planning regulations, and between 1987 and 1998 44% of Bogotá's geographical expansion was informal (Rueda, 2006). While some cases of land invasions can be identified, most of the peripheral urbanisation experienced by Bogotá is largely attributed to 'pirate'¹⁸ developers with the consequences outlined earlier (Losada & Gómez, 1976; Carroll, 1980; Gilbert, 1981).

¹⁷ Metrovivienda is the parastatal entity responsible of delivery of low-cost, or social, housing in the city of Bogotá.

¹⁸ The term 'pirate' developer refers to informal housing providers that illegally divide, distribute and develop land plots in order to sell low/cost housing to the poor. This is a common practice in Colombia (Gilbert, 1981).

This rhythm of population increase and urbanisation of the peripheries of Bogotá and beyond, have exerted pressure on land use and the environment. Different plans for developing housing and industrial zones in different municipalities near Bogotá have affected urban expansion, increased social segregation, and generated detriments in air pollution and overall environmental quality (Lizarazo, 2011; Alfonso & Pardo, 2013). In addition, Alfonso (2012) argues that in order to attract industry and local investment, ten of the most important municipalities around Bogotá have adopted policies of tax incentives, which has attracted the private sector to different areas in the inner and outer rings. However, the consolidation of municipalities in the vicinity of Bogotá has not affected greatly the socioeconomic distribution of their population, which is similar to Bogotá's. According to Medina, Morales, and Núñez (2008), Bogotá remains highly segregated, evidencing large localised clusters of wealth and poverty. In general terms, affluent areas are still concentrated on the northern side of the city while the poorest live mainly in southern neighbourhoods. This, despite trends of higher social mixture due to population movements within the metropolitan region and mild 'gentrification' in the city's centre. In addition, development of gated communities and large corridors of road and public transport infrastructure, particularly in northern Bogotá, have increased fragmentation within the city and its northern suburbs (Dureau & Salas, 2010).

3.2.2 Local and regional economy

Economic relevance of Bogotá has been another factor in increasing research interest in the area. Bogotá and its surrounding region contributed with 32% of the national GDP in 2012, concentrating 31% of national industrial production and a large share of the service sector (DANE, 2013). This places the region at the centre of the national economy. During the 1990s and early 2000s, Bogotá's per capita GDP was considerably higher

than the average for the rest of the country¹⁹ (Dávila, 2004). In addition, Bogotá's economy experienced faster growth in comparison with the national economy up to 2005. As shown in Figure 3.7, economic behaviour of Bogotá is intimately related with the national economy, reflecting very similar tendencies in per capita growth. Although economic growth in the city has been moderate in comparison to previous years, it has remained stable with restructuring of the local production toward a higher focus on the service sector. Currently the region's economic activity is mainly concentrated on small and medium-sized businesses (85%), and the largest share, approximately 85%, is located in Bogotá (World Bank, 2009; Lizarazo, 2011; Pardo Martínez & Alfonso, 2013).

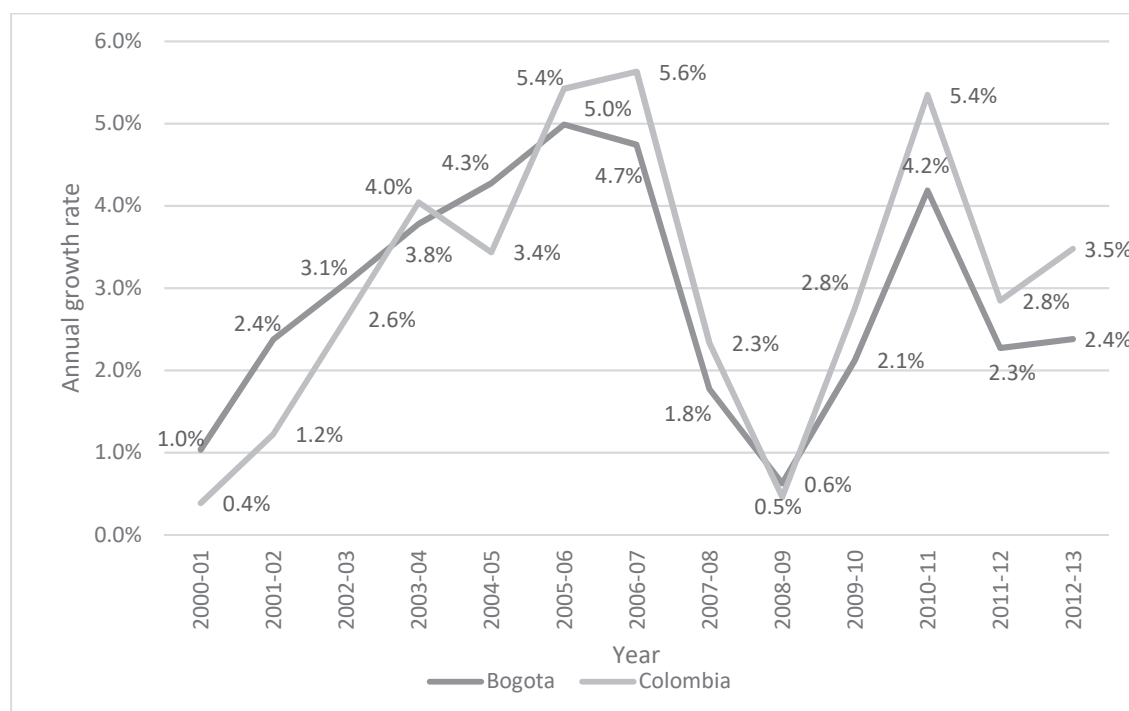


Figure 3.7 Rates of growth in GDP per capita for Bogotá and the rest of the country

Source: (Angulo, Díaz, & Pinzon, 2014)

¹⁹ Bogotá's per capita GDP was 61% higher than the national average in 1995 and 49.9% higher in 2000.

Evolution of the economy in the city has led to the strengthening of specific sectors, which is evidenced by the change in its structure of production. Between the late 1980s and 2013 the share of finance, insurance and real estate on the economic production of the city increased from 20 to 33%, while manufacturing experienced a sharp decay in the same period, decreasing from 25% to 10%. Commerce maintained a relatively stable participation on the economic production of the city, increasing from 11% to 15% in between 1989 and 2013 (Cuervo, 1992; DANE, 2014).

Restructuring of the city's economic production has influenced distribution of employment by sectors, decreasing the share of jobs in manufacturing (see figure 3.89). This is not to say that employment in the city has reduced. On the contrary, by 2008, unemployment in the city was below 12%. Data from the National Statistics Department shows that the number of unemployed in the city has decreased from 610 to 403,000 between 2001 and 2013 (DANE, 2014). However, there has also been a high increase in the number of informal and inadequate employment in relation to skills. There is a mismatch between the structure of the job market and the skills of the general population, affecting particularly low-income and in-migrant groups. The current structure of the local economy and slower economic growth pose difficulties for the generation of new formal employment in the city, increasing the effect of informality on the city's economic structure (Angulo, 2015).

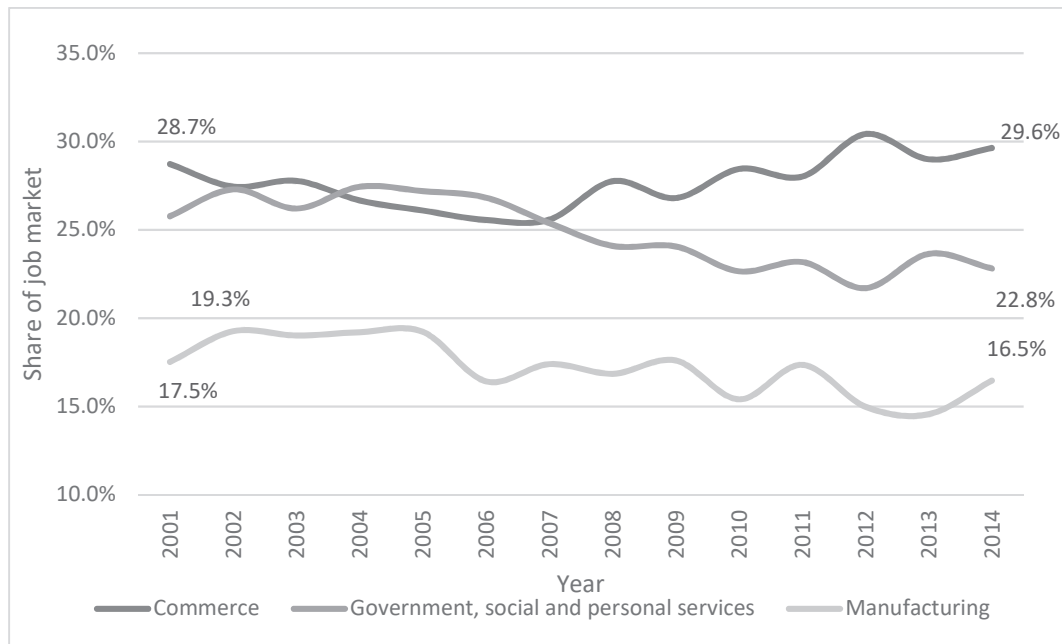


Figure 3.8. Bogotá D.C.: Job market distribution by sectors, 2001-2014

Source: DANE (2015)

Bogotá is the main centre of employment in the country, supplying around 4.1 million jobs in the formal sector in 2013 (DANE, 2014), enlarged by approximately 1.87 million informal employment jobs (DANE, 2014). However, spatial configuration of Bogotá concentrates most jobs along a biaxial CBD as shown in Figure 3.9. Concentration of employment opportunities in Bogotá and Soacha shows an imbalanced spatial distribution of economic opportunities that inevitably influence patterns of access and mobility in areas of lower income in both cities. The effects of these socio-spatial inequalities will be explored in further detail in Chapter 8.

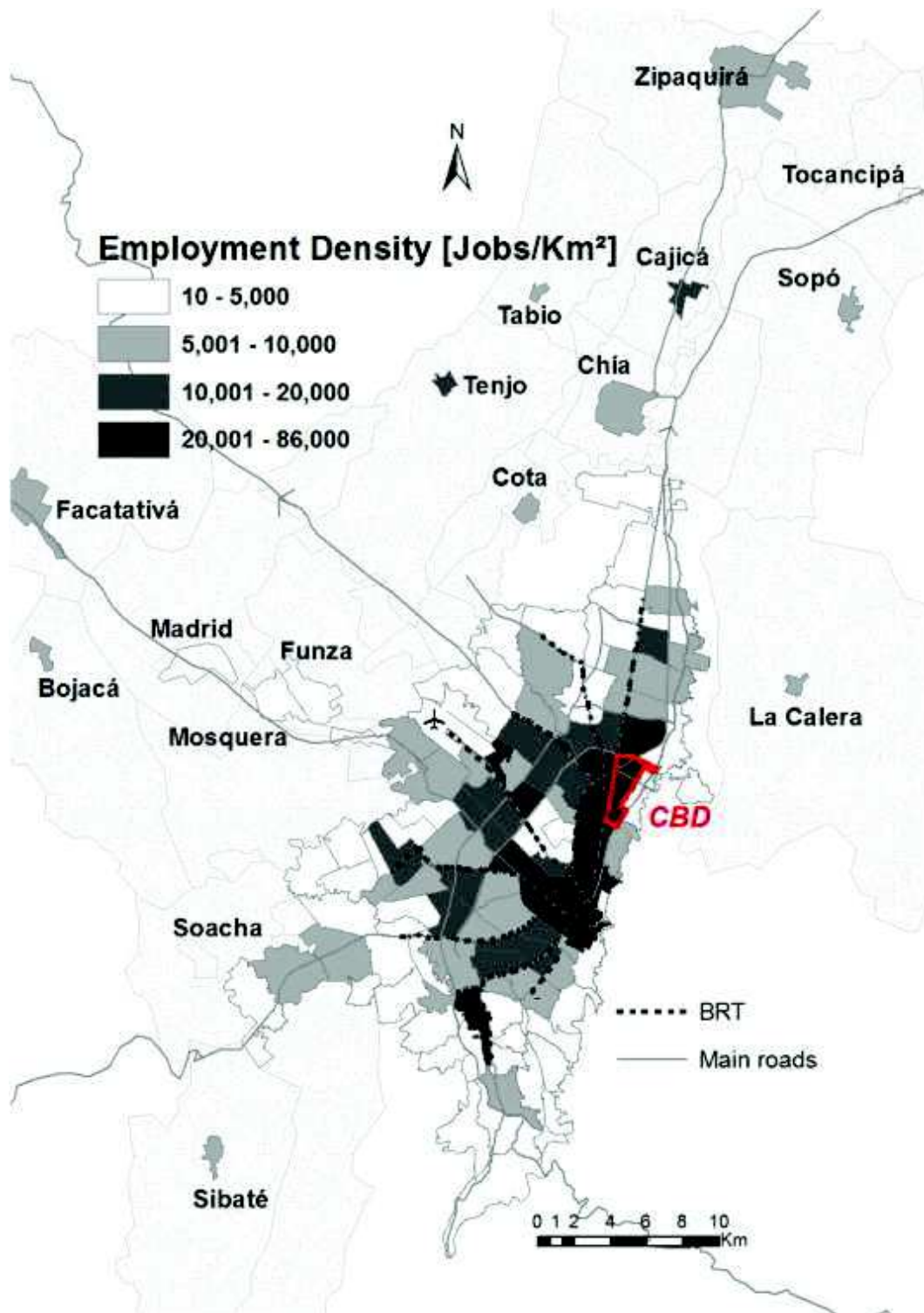


Figure 3.9. Bogotá metropolitan area: distribution of employment density 2013

Source: (Guzman, Oviedo, & Bocarejo, 2016)

Soacha's economic structure differs considerably from Bogotá's. Although the most up-to-date disaggregated information in relation to the job market of Soacha dates from 2005, data shows that economic production in the municipality is largely dependent on the industrial sector (Cundinamarca, 2008). As shown in Figure 3.10 the biggest contributing sectors to the municipality's GDP are industry, commerce and public administration. Estimates from the United Nations Development Programme for 2007 show the participation of industry increased to 53.8% while public administration decreased to 10% although there is no data regarding the evolution of other economic activities (UNDP, 2012).

Industrial production in Soacha gives the municipality economic relevance in the regional picture. As GDP indicators at the municipal level are not available for recent years, the National Statistics Department has produced a weighted indicator of municipal relevance in departmental GDP. This indicator for Soacha shows that the municipality represents 11.7% of Cundinamarca's GDP, the same portion contributed by the eleven bottom municipalities together (Cundinamarca, 2014). However, despite a relatively high economic output in Soacha, individual production is lower in comparison to other municipalities due to the size of Soacha's population level. Soacha's per capita GDP was 1/10 the value registered in the municipality with the highest per capita production (Cota).

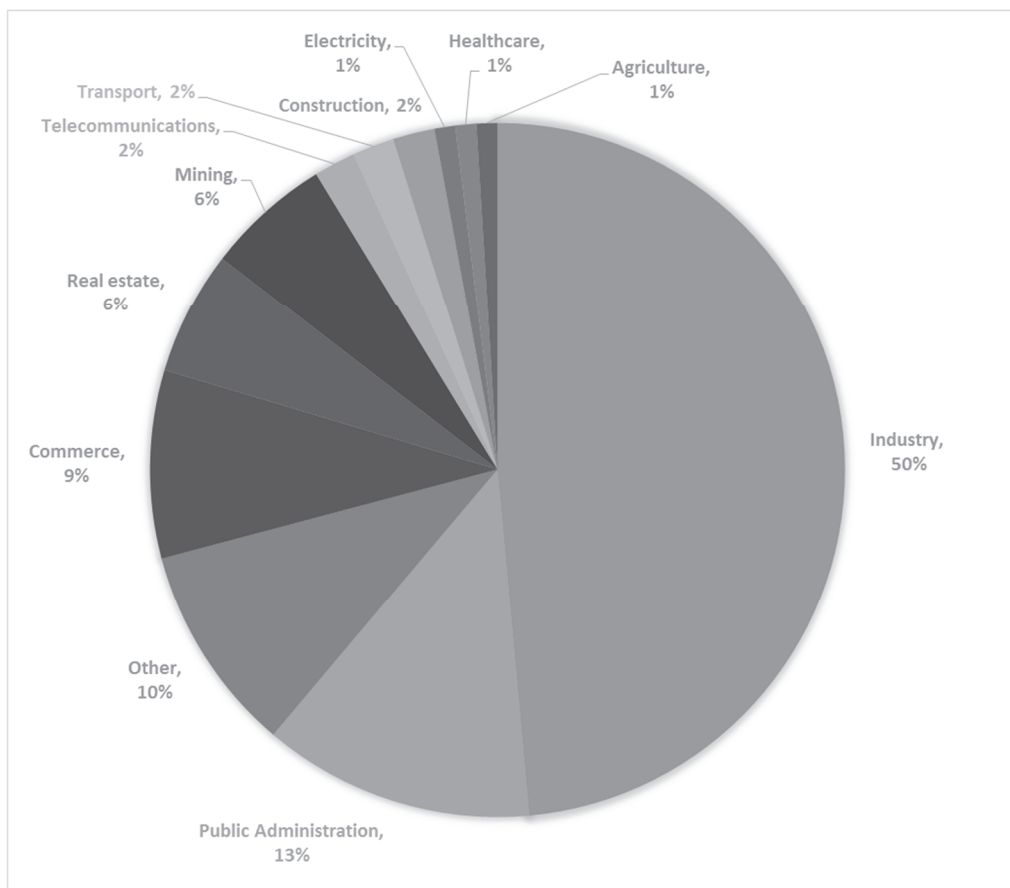
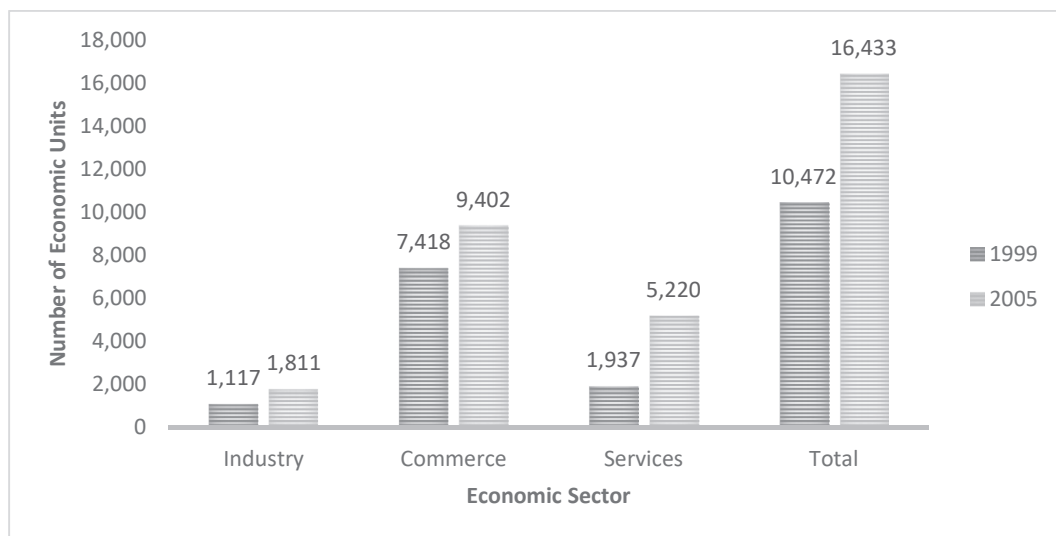


Figure 3.10 Industry participation of economic sectors in Soacha's GDP, 2005

Source: Municipal Development Plan of Soacha (2008)

The industrial sector is the most productive in the municipality, and is concentrated in small and mid-sized companies that can be either labour-intensive (clothing, bakeries and confectioneries) or capital-intensive (metallurgy, plastics, paints, brick, agrochemicals, glass, and related foams, cosmetics, etc.) generating 12% of the municipal employment (UNDP, 2012). According to data from the Economic Census of Cundinamarca for 1999 the largest number of formal economic establishments in the municipality belonged to the commerce sector, a distribution that has persisted in the most recent available economic statistics (DANE, 2005). However, as shown in Figure 3.11, companies in this sector tend to be of small size, contributing marginally to employment generation. While on average the industrial sector generates 9.47 jobs per economic unit, this figure is only 1.78 for the commerce sector and 3.73 for

services-related companies. These conditions have led to a limited capacity of the municipality to produce employment locally, accounting for approximately 53,000 jobs produced in situ. Data from the Chamber of Commerce of Bogotá estimates that this number can be enlarged by an additional 20% of employment in non-specified economic activities, reaching approximately 64 thousand jobs (CCB, 2010). Analysis from the same study suggests that a large share of local employment in the municipality is informal, accounting for 66% of the economic units identified in the census not being formally registered. This is especially high in the trade sector (CCB, 2010). Data from the census show an economically active population of over 149 thousand people in 2005 in Soacha (DANE, 2005). Under these circumstances, despite a large contribution of the informal sector to local employment, job supply in Soacha is insufficient for its local demand, serving only 42% of the economically active population.



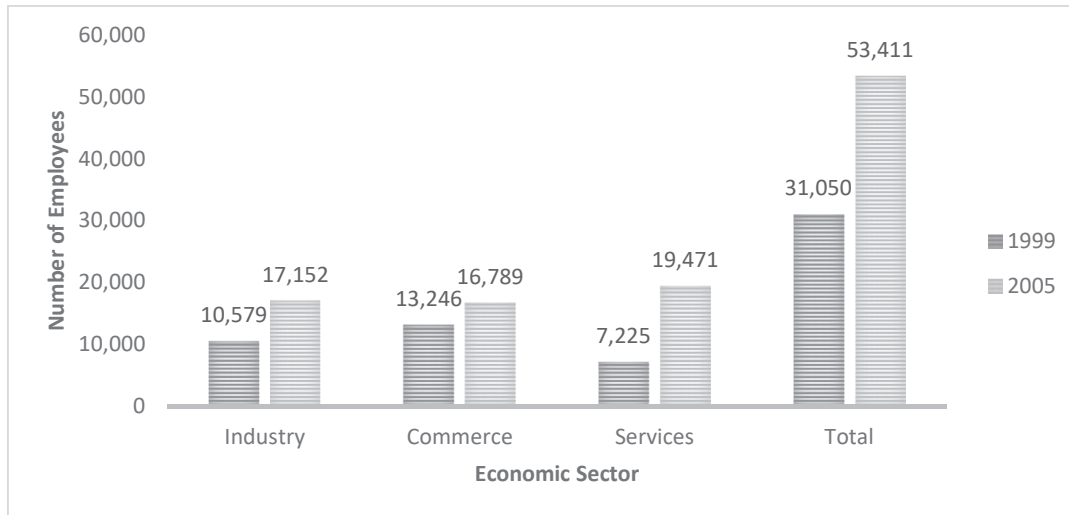


Figure 3.11 Number of economic units and employment distribution by economic sectors, Soacha, 1999 - 2005.

Source: Own calculations based on Economic Census of Cundinamarca (DANE, 1999), National Population Census (DANE, 2005)

Data of the employment market of both Bogotá and Soacha become relevant for this research insofar as it determines travel patterns to access income-generating activities. In addition, Bogotá has a spatially concentrated job market, with most opportunities, in terms of social services and public amenities, located at the city's centre (Bocarejo & Oviedo, 2012). This involves higher travel distances from the peripheries and neighbouring municipalities. In addition, concentration of activities in the city is strongly related to its transport infrastructure. Mainstream transport planning focuses on providing connections between centres of housing and activities following a demand-supply logic analogous to gravity models (Ortuzar & Willumsen, 2011). In a city with such marked concentration of employment it is thus natural that the primary road network is linked to main axis of activity and bus rapid transport services connect residential areas with the centres of opportunities. Something similar happens in Soacha. Economic activities like industry and commerce tend to concentrate in the vicinity of the southern highway, requiring both local workers and those requiring to travel to Bogotá to reach this road corridor, producing congestion and increasing travel times and costs. Economic development in the

municipality has become inextricably related to the road link with Bogotá, which has limited redistribution of economic activities in other parts of the municipality. As UNDP has identified: “The industrialization process results in the industry located in Soacha behaving as a seeker of income generated from spurious competitiveness (low taxes and utility rates) with little or no integration to social life and cultural life of the municipality and acting more like an enclave than as a dynamic force for growth and local development” (UNDP, 2012, p. 16).

3.2.3. Socio-economic conditions in Soacha

Territorial inequalities play a significant role in eliciting internal migration (Lall & Chakravorty, 2006). In this regard, migrants are mainly motivated by the search for better opportunities, moving from areas with less favourable living conditions to those where better living conditions are available (Rodriguez, 2011). Such conditions, as identified by the Department of Economic and Social Affairs of the United Nations, can be related to employment, particularly salaries, as well as dimensions such as education and housing (UN, 2011). Research conducted by the ECLAC (2007) in Latin America indicates that housing²⁰ is the predominant factor in intra-urban migration and suburbanisation. However, heterogeneous patterns of migration across the countries in the region make it difficult to generalise for all countries and groups of migrants. Nevertheless, large-scale migrations between major administrative units²¹/geographical areas inside countries can be largely explained by the differences in socio-economic development²² between them. According to data from UNDP for the region,

²⁰ Including accommodation, location and local availability of amenities and facilities for health and education

²¹ Understood as large administrative units for regional government, analogous to states or departments as in the case of Colombia.

²² Understood in relation to average wages and indicators such as education, life expectancy and GDP

(UNDP, 2011), there is a positive relationship between the human development index (HDI) and net migration rate. According to these estimates, there is a positive and statistically significant correlation in countries like Bolivia, Cuba, Ecuador and Honduras. The estimate for such correlation in Colombia is positive, with a value of 0.44, indicating a positive relationship between HDI and migration to major administrative units. Estimations based on the database on Internal Migration in Latin America and the Caribbean MIALC for the census data of Colombia show that the first major administrative unit in population gains from migration is Bogotá and the third is the Department of Cundinamarca, which is the administrative unit to which Soacha and other municipalities in the vicinity of Bogotá belong.

According to estimations by Cortés and Vargas (2012), estimations of well-being index²³ at the department level show that Bogotá and overall Cundinamarca belong to the highest quartile, being some of the country's areas with higher quality of life. This makes Bogotá's city-region one of the most attractive destinations for internal migration, being consistent with data mentioned above.

Increasing attractiveness of Bogotá and its vicinity for internal migration added to factors related to policies and conflict mentioned in previous sections have generated increases in demand for employment, urban amenities and resources beyond what the city is able to provide. Changes in economic development at the local level represent a challenge for the provision of income-generating opportunities, financing social programmes and investment on urban infrastructure, whose effects tend to be more severe for low-income groups. Social indicators evidence rising inequality despite reductions of poverty from 27% to 10% between 2002 and 2010,

²³ Encompasses dimensions of education, health, conflict, poverty and inequality, and public resources.

with a Gini index of 0.50 in 2010 (Lizarazo, 2011). In this regard, the city is constantly coping with increasing demand for job opportunities from a low-skilled demand for which neither Bogotá nor Soacha can supply comprehensively. A labour market analysis conducted in Soacha from the last census characterises the municipality as a typical ‘dormitory city’ that depends largely from Bogotá for its job supply (DANE 2005).

Table 3.2 Occupied population by economic activity, Soacha, 2003.

Economic activity	Total	Percentage	Male	Female
Agriculture	1,550	1.2%	65.5%	34.5%
Mining	139	0.1%	88.5%	11.5%
Manufacturing Industry	15,204	12.0%	63.6%	36.4%
Construction	4,694	3.7%	96.0%	4.0%
Public Administration	9,109	7.2%	36.0%	64.0%
Non-specified	70,213	55.6%	57.5%	42.5%
Commerce	10,530	8.3%	67.9%	32.1%
Services	14,953	11.8%	57.6%	42.4%
Total	126,392	100%	59.1%	40.9%

Source: DANE experimental census for Soacha (2003)

Table 3.2 provides relevant information regarding the distribution of labour demand in Soacha by economic activities. Data shows a striking share of the occupied population working in ‘non-specified’ economic activities. This, according to analyses by DANE and the CCB is related with a large share of people in Soacha working either informally or being under-employed. From the 44% that specified an economic activity, it can be inferred a large dependency of the industry and services sector. Soacha has been historically characterised by being a regional centre for industrial production and mining related with construction aggregates, which suggest that people working in these sectors will be likely to be employed within Soacha. However, regional services, construction and commerce-related activities take place within Bogotá, which may lead to a large share of

people in these sectors depending on transport links between Bogotá and Soacha for accessing employment.

According to the Chamber of Commerce of Bogotá -CCB- and the Municipal Development Plan, unemployment in the municipality in 2003 was 15.6% of the economically active population. Of the economically inactive, 41.2% are students, with their greater representation among the population aged 10 to 24 years. In addition, 36.8% of the economically inactive population, mostly aged between 25 and 54 years, is engaged in household tasks (CCB, 2005b). The CCB also identified a high degree of informality in most of microeconomic units in the municipality, where 76% of employees are owners and workers without fixed remuneration. Moreover, it is usual that firms in the services and industry sectors engage foreign workers with higher education levels than the local population, contributing to local unemployment and forcing migration or commuting of technicians and professionals of the municipality in search for better opportunities. According to a sample of 102 firms surveyed in 2004, equivalent to approximately 5,500 employees, 61.08% of employees were non-resident (SDP, 2008). In addition, the Land Use Plan for 2000 stated that 55% of the population of Soacha was working in Bogotá by that time.

Migrants in Soacha move there to access opportunities in Bogotá. However, low quality of life in the municipality increases vulnerability of low-income residents of the municipality and deepens their dependency from better access to opportunities and income to overcome their conditions of poverty. Availability of utility services in the municipality is limited, as it is institutional response in terms of health, education, housing and safety. Similarly, socio-economic conditions of the population increasingly require the presence of the State to provide minimum life standards. According to the 2005 population census, 96.7% of households have access to electricity, 82.8% to water, and 83.6% to sewerage. Moreover, 20.9% of households in the municipality have inadequate or incomplete access to basic utility services (DANE, 2005).

3.2.3 *Transport supply and demand*

Adequate urban transport provision in Bogotá-Soacha conurbation has been shaped by rapid urbanisation, institutional and regulation boundaries, and financial limitations to cope with increasing travel distances, rising travel demand and motorisation between the 1970s and 1990s. Traditionally, urban public transport had been delivered by a chaotic set of public and private agents with different interests in the business of public transport. This had led to a disorganised institutional map with lack of clarity regarding distribution of responsibilities, resources and control in the provision of public transport. Thus, toward the late 1990's Bogotá suffered from oversupply and perverse incentives leading to continuous detriment in service quality and intense competition amongst low-scale providers in what has been termed the 'war of the cent' (Ardila, 2005). Although for many years the city had contemplated investing in underground rail-based mass public transport, high costs, political issues and over-expenditure in the only metro system in the country, Medellín's, have stalled metro initiatives for the last 20 years (Acevedo, Salazar, & Castañeda, 1993). Resulting regulations from the Medellín experience require the national government to finance 70% of capital investment in public mass transport projects, limiting the ability of local governments to invest in capital intensive initiatives for addressing public transport needs.

Facing acute traffic congestion in the city centre and main arterial roads, and severe mobility issues stemming from increasing demand and poor supply, the city adopted a radical approach to urban transport in the late 1990s with some remarkable results. To respond to rapid population growth, rise in poverty -both in absolute and relative terms- and increasing motorisation on the one hand, and oversupply of obsolete public transport fleet, and inefficient road space allocation on the other, the city started actively promoting use of non-motorised transport, improvements in public space and infrastructure, and restrictions to car use, among other measures (World Bank, 2003). Bogotá's system in the late 1990's led to the

development of Transmilenio BRT as a mass public transport solution for a city that had been promised a metro already 4 times in its recent history (Acevedo et al, 2008).

Transmilenio, Colombia's first Bus Rapid Public Transport system, was planned for a city that at the time had 6.4 million inhabitants (1999), and represented 15.2% of the country's population with one of the highest densities in the country (210 people per hectare) (Transmilenio, 2004). In 1999, 1 million cars carried 19% of Bogotá's population, while 30,000 buses transported 72% of the city's inhabitants at an average speed in the morning peak of less than 10 Km/hr; an equivalent to 2 hours 20 minutes daily as average travel time by public transport (Transmilenio, 2004). This represented a huge challenge for a local government with limited resources and constrained by national regulations for investment support from the national government (Acevedo et al., 2008).

Transmilenio has become one of the most common topics of research concerning urban transport in Colombia. The system and overall evolution of urban transport in the city have been recognised as global good practice in sustainable mobility (Gwilliam, 2002; ITDP, 2013), which is backed by results from research over the years. In only four years after its implementation average travel times decreased by 32%, accidents in the corridors where the system operates dropped by 90%, and air pollution due to emissions of particulate matter decreased by 9% (Echeverry et al., 2005). By 2016, Transmilenio has implemented the third of six phases initially proposed for the project and the city is implementing an integrated public transport system -SITP- that aims to cover 100% of public transport demand by encompassing all transport supply under an unified public transport system, planned and operated by the same management agency that currently oversees the BRT's planning and development and operated by private agents following a similar organisational, financial and legal scheme as Transmilenio's (Bocarejo et al., 2014). The relatively rigid structure of the system and operational design that require the fare to fully

cover operation costs have generated issues of accessibility both in relation to spatial coverage and affordability, especially in low-income areas of the city (Bocarejo & Oviedo, 2012). Despite a positive evolution of urban transport in the city, Bogotá is still challenged by social and spatial segregation associated with in-migration and informal urbanisation as discussed earlier. Similarly, given the institutional arrangements in the region and the dynamics of localised poverty, transport providers and planning agencies inside Bogotá find themselves circumscribed by jurisdiction limitations to address travel needs in areas of high deprivation.

3.3 Soacha as a research setting

Having placed the research subject in the regional and local context and identified the challenges and general conditions for transport development in the metropolitan scale, Soacha presents itself as an adequate case study. The municipality provides unexplored, yet common set of conditions for the analysis of the interrelations between transport planning, informal development and social exclusion in peripheral areas of large cities of Latin-America.

As established by Bassand and Brulhardt (1980) in an early approach to mobility as a complex social phenomenon, the context in which the analyses take place is of the utmost importance. In this regard, conditions of dual periphery, circumstances of poverty and vulnerability, and the economic and spatial configuration of Cazucá compound an empirically and theoretically challenging framework for the research.

First, with an increasing deficit of land for informal development and rising prices of formal social housing and consolidated neighbourhoods even in low-income areas inside Bogotá, recent development of low-cost housing has concentrated in Soacha. Between 1970 and 1990 built-up land in Soacha increased from 147 Ha to 424 Ha, with the first informal settlements in the periphery of the municipality developed in the early 1980s (Dávila, Caicedo, & Coupé, 2006). This informal growth continued in the following

years, strengthened by similar mechanisms to those used by informal developers in Bogotá, reaching areas today spanning both cities. Soacha shifted rapidly from industrial centre to a primarily residential area with comparatively lower prices for land and housing than Bogotá. Internal migration exacerbated by conflict and violence in rural Colombia and saturation of land for low-cost housing in the outskirts of Bogotá have made Soacha an attractive destination for informal housing and land invasion, although the latter was much smaller in scale. Demographic dynamics added up to the strategic location of Soacha in relation to Bogotá have led to disordered urbanization in unsuitable areas for housing and topographically challenged locations that limit coverage from transport infrastructure and services.

Conditions that foster internal migration to Soacha have led population in the municipality to experience high growth rates, particularly along the border with Bogotá, resulting in the intense conurbation that pertains this study. According to DANE data, in 2000 Soacha had 344,761 inhabitants and grew at an annual rate of over 6%, well above the national urban average of 1.2% and Bogotá's annual growth rate of 2.17%. By 2010, the municipality was home to 455,992 inhabitants, becoming one of the most populated urban areas in Colombia (DANE, 2005).

Second, after a long history of centralisation, Colombian governments in the late 1980s and 1990s introduced new legislation and regulatory frameworks intended to bring a strong institutional reform. Jurisdiction over utilities and some aspects of infrastructure and urban services was given to the municipalities, including urban transport management. The new national Constitution of 1991 sought to strengthen democracy through decentralisation and reinforcements of citizen rights. Reforms included changes in fiscal transfers from central to local governments that intended to empower municipalities to pertain functions of spatial planning and management of fiscal resources more independently. However, administrative decentralisation limited joint planning initiatives between

Bogotá and Soacha, as well as constrained the municipal government for providing adequate transport infrastructure to the consolidating low-income populations in informal settlements. With new fiscal and administrative independence, a potential metropolitan area for Bogotá became less appealing for local governments of surrounding municipalities as they would have more autonomy and resources as independent entities than administrative units of the large city. In Soacha, rapid demographic increase and informal urbanisation together with the weak institutions of the municipality, have constrained provision of public services and urban facilities (Government of Soacha, 2011). Lack of local expertise, corruption, populism, and difficulties for collection of tax revenues from the informal sector led to rapid detriment in the quality of urban development in Soacha and other municipalities facing similar challenges (CCB, 2005b; UNDP & Government of Soacha, 2012).

Third, Colombian cities, and especially Bogotá, occupy a preferential position in transport research in developing countries being subject of research exploring the operational, institutional, technical and social dimensions of urban mobility. The transformation of Bogotá from a highly congested, disorganized, polluted and unsafe city up to the 1990s, to award-winner, people-oriented one in the early 2000s, has made the city “subject of countless interviews, documentaries, articles and books” (Despacio, 2008, p. 3). Some of the most prominent subjects of research regarding Colombian urban transport in the last two decades have been Bogotá’s high-capacity bus rapid public transport system, Transmilenio, and the implementation of policies supporting sustainable urban transport development that followed it (Hidalgo & Sandoval, 2001; Ardila & Menckhoff, 2002; Nair & Kumar, 2005; Cervero, 2005; Montezuma, 2005; Ardila, 2007; Rodriguez & Mojica, 2008; Valderrama & Jrgensen, 2008; Cervero et al., 2009; Bocarejo & Oviedo, 2012; Hidalgo et al., 2013, among others). Paradoxically, although Soacha has been strongly influenced by social, demographic and urban dynamics in Bogotá during the last 30 years, it has been largely overlooked by recent urban and transport

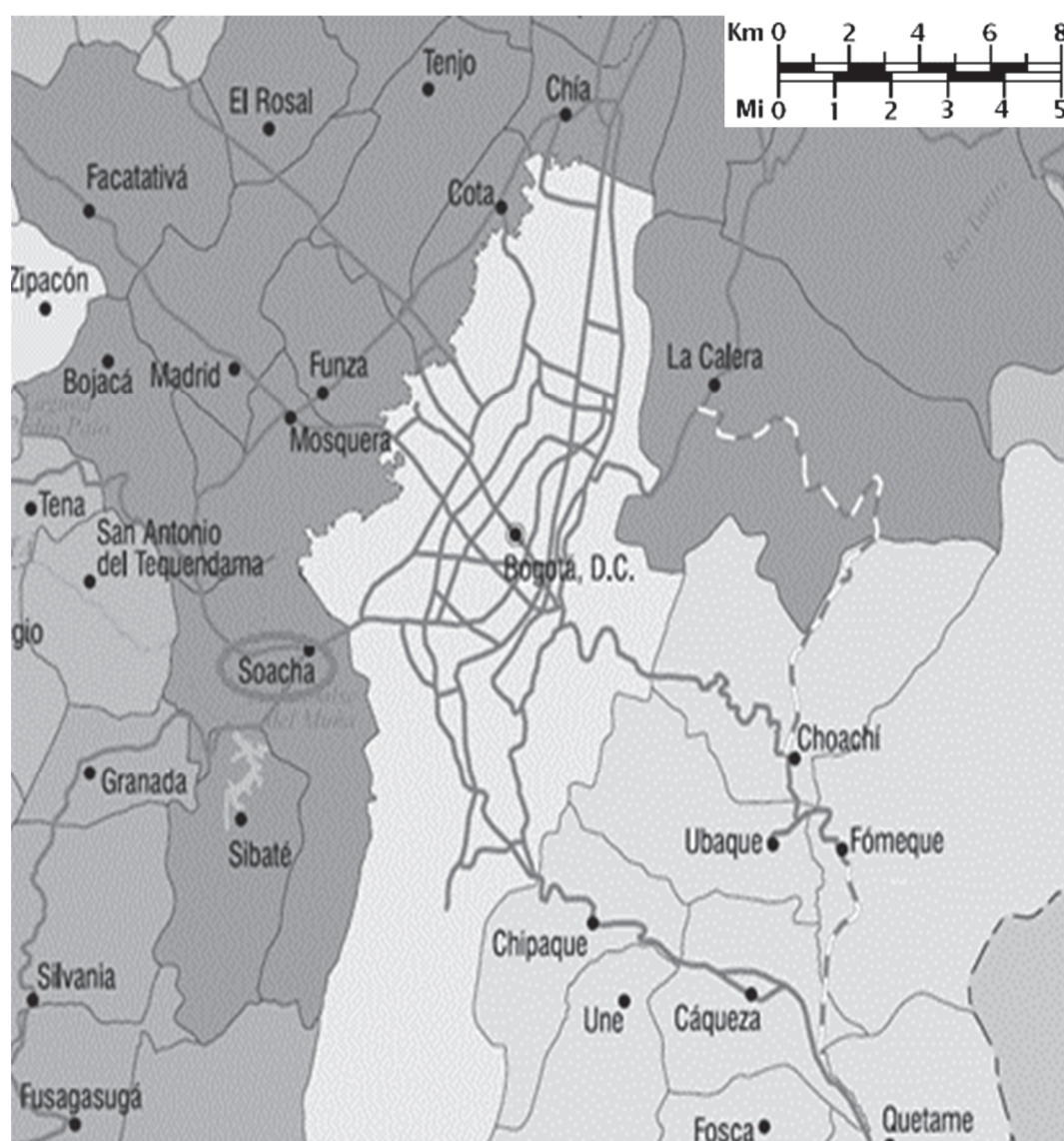
research. Research focusing on urban mobility has been circumscribed by administrative boundaries, neglecting the metropolitan perspective and the relevance of surrounding municipalities in the travel dynamics of Bogotá. Social consequences of Soacha's conditions of limited connectivity, widespread informality and institutional and fiscal weaknesses to address travel needs of its population, are intimately related with, if not a consequence of, national and regional dynamics and the development patterns of Bogotá.

Fourth, given the topography and location of Soacha, most informal urbanisation has concentrated on the eastern and northern areas of the municipality, which are characterised by challenging topography and difficult access from the centre of Soacha, while ironically being closer to Bogotá from its south-eastern border. On the northern hills of Soacha rise a set of informal neighbourhoods known locally as Cazucá and administratively classified as part of Comuna 4²⁴. These neighbourhoods are separated from Bogotá by a virtual boundary composed by the political and administrative division between the City and the municipality of Soacha.

Neighbourhoods in Cazucá have unique characteristics in relation to spatial accessibility, poverty and informality that reflect the general conditions of migration, decentralisation and transport development outlined for both Latin-America and the Bogotá city-region in the previous section. The research then sets out to analyse an overlooked case of urban development by previous research in transport in the Colombian context. The study of Cazucá and the Soacha-Bogotá interactions provide valuable elements of analysis for the critical exploration of the social consequences of transport planning. Figure 3.14 shows the location of Soacha in relation

²⁴ *Comunas are an aggregation of neighbourhoods used in Soacha for administrative purposes. The municipality is divided in six comunas.*

to the structure of the city-region and the area of Cazucá, selected for the field research.



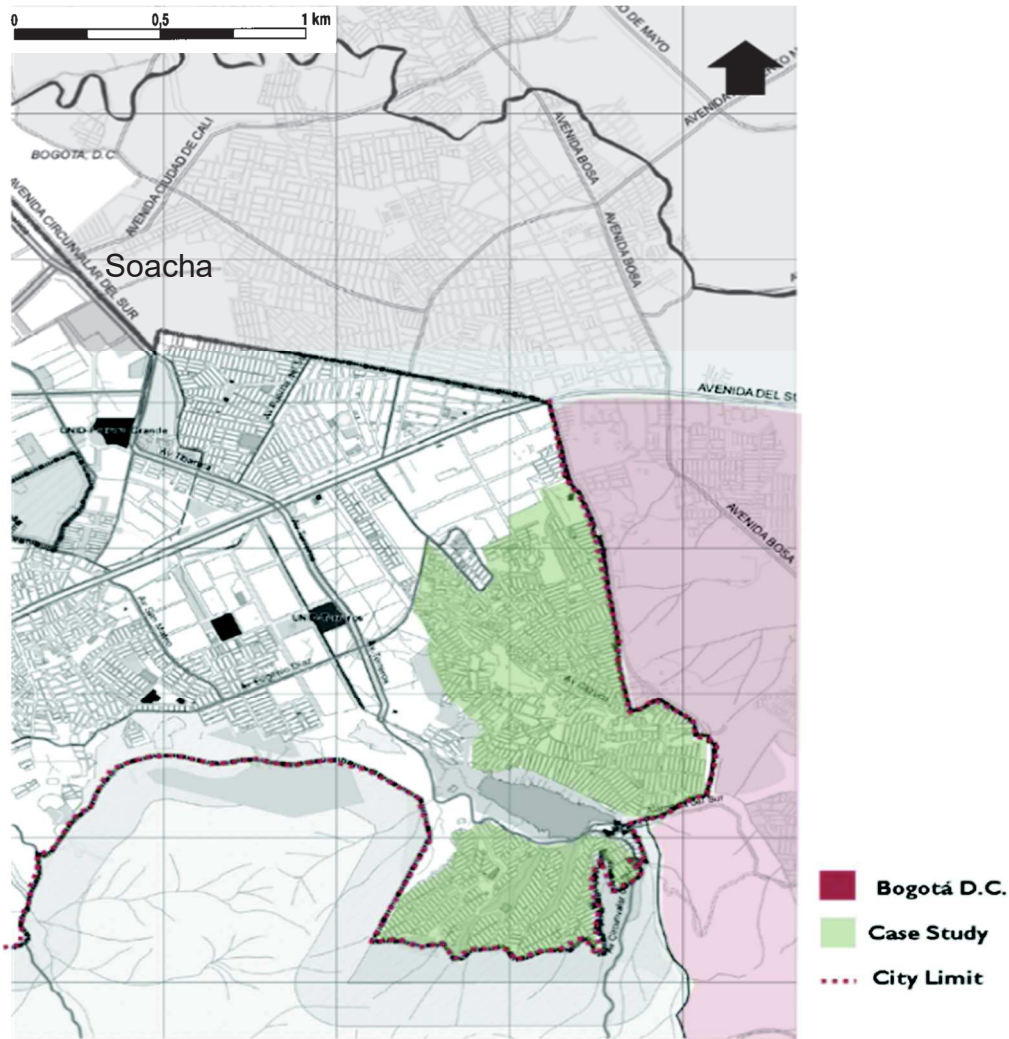


Figure 3.12 Bogotá City-Region and case study location

Source: Government of Cundinamarca (2007)

3.4 Period of study

The research spans the period between 2000 and 2013. The first phase of the research focuses on the period between 2000 and 2010, tracing the development of informal settlements in Cazucá in parallel with transport conditions.

The second phase involves analysis of field information collected between January and September 2013. This time marks the space between two milestones in transport policy in the municipality: the promise in 2010 by the previous country's President of building a cable-car-based public

transport system for the municipality, linking Cazucá with the start of operation of the extension of Transmilenio to Soacha in 2014, nearly 7 years after the planned date opening. 2000 was selected as the base year of the research, the date of the first land-use plan for the municipality -POT-, per current regulations in the country.

In this regard, user's travel conditions examined as part of the research reflect the dynamics of transport planning, travel strategies and social exclusion resulting from 20 years of development and consolidation of informal settlements in Soacha and their functional interaction with Bogotá. Major transport infrastructure initiatives were not in place at the time of the field research and as such were not involved in the travel strategies of low-income settlers interviewed in Cazucá. For this reason, they are simply outlined in the chapters that follow.

The next chapter presents an overview of research methods used for the empirical research and the structure of the field research. In addition, the chronology of the research setting and criteria for selection of neighbourhoods of study in Soacha, sample and qualitative methods are presented. Finally, the approach for analysis and the limitations of the qualitative research are outlined, and the ethical issues of the research are discussed.

4. Methodology

As was argued in previous chapters, the research seeks to provide insights on transport development and governance in Soacha in the face of acute social issues related to vulnerability and poverty, challenging geographical and spatial conditions for local mobility and accessibility, and political constraints for participation and inclusive planning. In this regard, the methods are as important as the conceptual structure of the research. This chapter presents the data gathering strategies and methods of analysis that better reflect the institutional, fragmentation, transport and social exclusion dimensions of the research, and that respond to the critique to traditional transport planning the research pursues. The chapter also defines data sources and collection methods, structure of the fieldwork and the specificities of sampling. This part of the document also contains the definition of the qualitative instruments for research, ethical issues related to the fieldwork and the limitations of the methodology selected.

4.1 Research methods used

Data used as part of this study was collected throughout the duration of the research until the start of the writing-up phase in 2014. In addition, the research builds on previous research on the area in 2011, in which I participated (see Dávila, 2013), my first approach to the research area. Initial secondary data and documentation was collected between June and August 2012, while primary information was gathered mainly during the fieldwork that took place between January and September 2013. Research methods used are as follows:

- a. Review of databases, reports, technical documents, and media from local sources related to transport provision and urbanization in both Bogotá and Soacha. Information reviewed comprises regulatory frameworks, land use and transport plans, technical appraisals of public transport and infrastructure projects, and academic sources, among other documentation. includes a list of analysed documents.

- b. Open-ended interviews with policy makers and academics related to the development of transport policy and urban development in the Bogotá-Soacha region and governance systems and challenges for metropolitan institutions.
- c. Semi-structured interviews with residents of selected neighbourhoods in Cazucá. Household heads and/or their partners were included in the interviews. The method used for selection of interviewees is explained later in this chapter.
- d. Spatial analysis of transport supply and review of quantitative databases of socioeconomic information and travel surveys.
- e. Mapping of formal and informal transport routes in the neighbourhood and identification of conditions for local mobility through observation.
- f. Direct observation of travel strategies and local mobility of selected groups in the area.

The following table includes an overview of the information used in the research.

Table 4.1 Overview of type of secondary information and data sources

Type of Data	Description	Sources
Geographic Databases	GIS shape files and built maps corresponding to the administrative divisions of Bogotá and Soacha, networks of infrastructure and formal transport routes, urban structure, topography, national road network, neighbourhoods and historical cartography from the late 1990's.	<ul style="list-style-type: none"> • Instituto Geográfico Agustín Codazzi • Secretariat of Planning of Bogotá • Secretariat of Mobility of Bogotá • Soacha Government • Transmilenio S.A. • Universidad de los Andes
Mobility Databases	Origin-Destination matrices for the capital region, Origin-Destination, declared and revealed preferences surveys for Bogotá and Soacha (2005-2011), technical studies for the extension of Transmilenio to Soacha (2002) and the implementation of an aerial cable-car in Cazucá (2009), household car ownership databases (2005 – 2010).	<ul style="list-style-type: none"> • Secretariat of Mobility of Bogotá • Soacha Government • Transmilenio S.A. • Universidad de los Andes
Household Surveys	Household purchasing power survey (2004-2009), national population census (2005), integrated household survey (2001-2008), socioeconomic analysis of the municipality of Soacha CCB (2005).	<ul style="list-style-type: none"> • National Statistics Department (DANE) • Secretariat of Planning of Bogotá • Treasury Secretariat of Bogotá • Chamber of Commerce of Bogotá
Economic Databases	Economic census of Cundinamarca (2000), national and municipal economic statistics (2000 – 2008), employment databases for Bogotá (2003 – 2008), experimental inventory of informal opportunities in Bogotá (2009).	<ul style="list-style-type: none"> • National Statistics Department (DANE) • Secretariat of Planning of Bogotá • Treasury Secretariat of Bogotá • Chamber of Commerce of Bogotá • Universidad de los Andes
Policy/Planning documents	Municipal development plan Soacha (2004, 2008), development plans for Bogotá (2004, 2008, 2012), land use plan of Soacha (2000, 2010), land use plan of Bogotá (2010), transport master plan for Bogotá (2005, 2010), technical analysis of the extension of Transmilenio to Soacha (2002), technical analysis of the implementation of an aerial cable-car in Cazucá (2009), diagnostic of the municipality of Soacha CCB (2005-2010).	<ul style="list-style-type: none"> • Mobility Secretariat of Bogotá • Soacha Government • Transmilenio S.A. • Secretariat of Planning of Bogotá • Treasury Secretariat of Bogotá • Chamber of Commerce of Bogotá

Source: Own elaboration

4.2 Structure of the field research

After the first year of starting my research degree I travelled to Bogotá to do fieldwork for a period of ten months, with a pause of five weeks for consultations with supervisors and attending a summer course on research

at the University of Oxford. The data collection work was divided in three main phases: collection of secondary information and documentary research; refinement of research methods, pilot implementation and interviews with experts; and, gathering primary data from local institutions and residents of the case study.

The first part of the field research took place between December 2012 and February 2013. During this phase I reviewed secondary documents providing baseline information at the local, municipal and metropolitan levels. Data collected provided an overview of demographic, socioeconomic and transport-related figures for the selection of case-study neighbourhoods and mapping of institutional framework for the research. Most of the information obtained, as outlined in Table 4.1, provided data at aggregated levels, with limited or no availability of specific figures for neighbourhoods in Cazucá. In this period, I conducted a detailed analysis of dynamics of spatial planning and influence of administrative borders in the development of local settlements between 2000 and 2010²⁵, building on the theory of splintering urbanism by British scholars Graham and Marvin (2001). This analysis is outlined in Chapter 7. In addition, with help of local colleagues at Universidad de los Andes²⁶ and Universidad del Rosario²⁷ in Bogotá, I identified experts and contacts in local government in both Soacha and Bogotá, as well as potential research assistants with knowledge about the research area.

²⁵ *This is not only the period for which better data is available but also when the most intense dynamics of informal development and neighbourhood consolidation in the area. Older neighbourhoods are of course analysed but the analysis of splintering is focused on this decade.*

²⁶ *I collaborated with the Urban and Regional Research Group – SUR at the Department of Civil and Environmental Engineering, especially professors Juan Pablo Bocarejo and Jorge Acevedo.*

²⁷ *Professors Diana Bocarejo and Maria José Álvarez, at the departments of Sociology and Anthropology respectively, were instrumental in discussions regarding qualitative methods selected and identification of research assistants.*

The second phase took place between February and March 2013. Following consultations with colleagues at local universities, I identified two research assistants with knowledge about the research area and local communities. Students Natalia Duarte and Laura Díaz from the department of Sociology of Universidad del Rosario had recently conducted their undergraduate dissertations on different issues in neighbourhoods of Cazucá. Both Natalia and Laura had previous contact with local leaders, NGOs, and even some local criminal groups as part of their own research, which smoothed the setup of field activities. Each of them accompanied me to different neighbourhoods where they had worked before, acting both as research assistants and gate openers.

A draft semi-structured interview schedule was prepared for interviewing residents in relation to their travel strategies and living conditions. Considering the characteristics of the population and research setting, the interview was tested in the neighbourhood of El Tanque in Potosí at the southernmost part of the locality of Ciudad Bolívar in Bogotá (see figure 4.1), close to the border with Soacha. Seven interviews were conducted in this area. These served as pilot for the interview design and as baseline information for identifying differences between residents of low-income neighbourhoods on different sides of the border between Bogotá and Soacha. Data collected from the pilot study was transcribed and analysed to identify general trends and detailed information related to definition of travel strategies according to occupation, gender, ethnicity and location among other characteristics. Transcripts were subject to content analysis and used for refining the interview for later implementation in neighbourhoods of Cazucá.

One of the central hypothesis in the research is that, as part of the broader process of urban development, transport planning is highly influenced by governance systems, structures and boundaries. In a metropolitan scale, these factors can contribute to the understanding of forces governing provision of transport infrastructure and services, operational schemes and

service restrictions for particular social groups. To analyse the administrative sphere of the research, urban development and land-use plans, current and recent transport projects and some pertinent legislation were studied. Existing documents were analysed up to the date of the field research, which includes previous plans and sketches of future projects but not any changes that have taken place after the interviews with local actors were conducted (i.e. the start of operation of Transmilenio in Soacha in 2013, or more recent debates regarding the creation of a Metropolitan authority for the Bogotá region that includes Soacha).

In addition, open-ended interviews were carried out with local experts and government officials in both Bogotá and Soacha. The list of interviewees is included in Appendix A. These interviews aimed at obtaining information related to urban and transport development processes in the region and different perspectives in relation to transport planning in the city of Bogotá and its surroundings. Interviews with government and public officials helped map the institutional framework under which transport in the interface Soacha-Bogotá has been developed and operates. Respondents were enquired regarding the involvement of different actors and institutions in the provision of urban transport and connectivity services between the two cities and the emergence of different alternatives for motorised transport in Cazucá. This part of the research was undertaken at two levels: institutional, which include city and municipal government and parastatals like Transmilenio S.A.²⁸; and neighbourhood, which includes local leaders, civil society organisations and international aid agencies. Results from the analysis of this information are included in Chapter 6.

The third phase of the field research was done between April and September 2013. This part aimed at exploring in detail some particularities

²⁸ Transmilenio S.A., or Transmilenio company, is a publicly owned enterprise of the Bogotá city government that manages operation and development of Bogotá's Bus Rapid Public transport system since its start in 2001.

of the relationships between transport and poverty for local communities in low-income segregated urban areas. Primary information was gathered through semi-structured interviews with residents, transport providers and local leaders in relation to the travel practices of the area of study, building on the pilot research. The sample, including the pilot study, comprises 81 individual interviews distributed proportionally across some of the neighbourhoods that form the area of Cazucá in Soacha. Information was collected interviewing residents mostly during weekends to capture the views of individuals working and studying outside the area. Figure 4.1 shows the aggregated areas that compose the general case study²⁹, each with different conditions of transport supply and physical barriers to access main transport networks and opportunities.

Interviewees were divided into categories based on their role in transport and social dynamics in the area, with attention to residents. Each interview lasted between 45 minutes and 1.5 hours. In most cases, interviews involved audio recordings and written notes during the conversation, which were supplemented by either extension on preliminary notes immediately following the end of the interview or transcripts in the days after. Information obtained from the interviews was analysed under a framework based on the dimensions of transport-related social exclusion identified from the literature, mostly building on the work of Church, Frost, & Sullivan (2000), as outlined in Chapter 2 and further developed in Chapter 8, seeking elements that might enrich this type of analysis. A categorisation of different profiles of users, conditions for travelling and identified local facilities and constraints for access are central in the structure of the research. This involved a content analysis of the interviews, clustering respondents by characteristics and locations. In addition, direct observation and participation in local practices for commuting and returning to the settlement

²⁹ These are aggregated according to administrative criteria. However, local names of neighbourhoods differ, providing an additional level of disaggregation in the selection of case studies.

were observed during a two-day period in which I stayed in one of the neighbourhoods. The aggregated results of the travel strategies obtained from the interviews and observation exercise were summarized and analysed building on existing frameworks for approaching the relationships between transport and poverty.

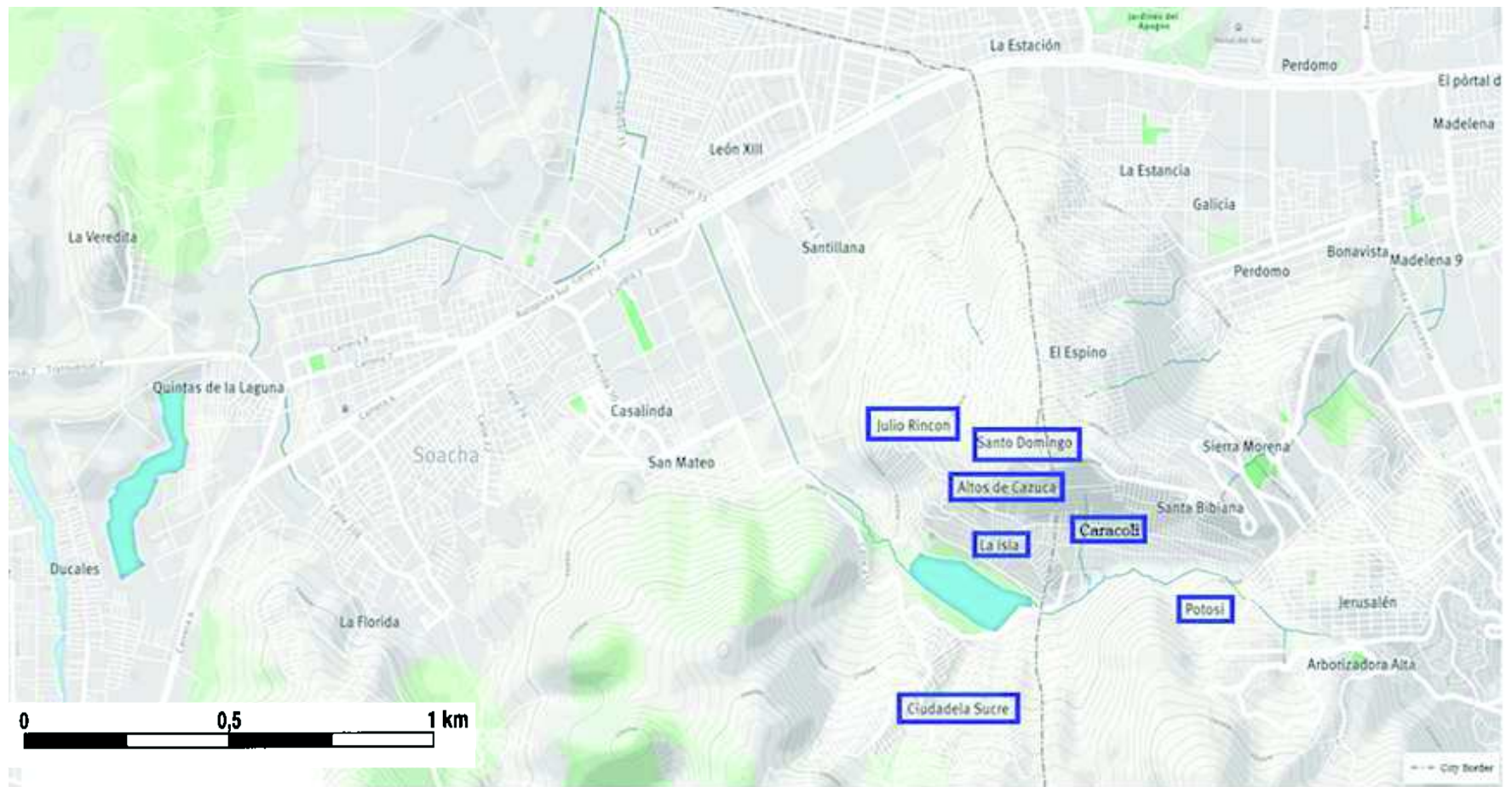


Figure 4.1. Areas of analysis

Source: Open Street maps (2014)

4.3 Chronology of research in Cazucá

Chapters 5 and 6 seek to place the conditions in Cazucá in context in relation to local transport planning process and governance systems, common in informal neighbourhoods of Latin-American cities. However, the core of the research lays in the definition of travel strategies by low-income citizens facing social and transport disadvantage resulting from these processes. Thus, the central part of the fieldwork takes place in seven neighbourhoods of the northern hills of Soacha and two neighbourhoods in the southeast of Bogotá.

During February 2013, I conducted preparatory work for the field research and selection of case studies (a summary of criteria used in the selection is provided in the following section). The pilot neighbourhoods mentioned in the previous section were selected based on cartography, topographic profile of the area and similarities with Cazucá in relation to poverty levels and access to urban public transport. Before visiting the area, I coordinated an orientation session with the research assistants to review the interview and materials for collecting data (recording devices, notepads, camera, and interview printouts). We identified a local leader through colleagues from Universidad del Rosario, which helped us introduce the research to the community and draw up the sample for this neighbourhood. In this case I interviewed seven people, continuing the conversation for a short period after completing the interview. This helped me identifying additional issues for including in a revised version of the interview schedule. In addition, I requested research assistants to take notes from their perspective, which provided additional elements for consideration in preparing the fieldwork in Soacha.

The interviews were conducted in two periods divided between March and June, and August to mid-September 2013. In the first period the neighbourhoods of Santo Domingo, Caracolí, El Oasis, La Isla, Bella Vista,

and Ciudadela Sucre were covered, interviewing between five and ten people in each neighbourhood depending on the estimated size of the local population. After the pilot study, it was decided that access to the study population would be easier during weekends. This was due to the limited availability of people during weekdays due to long work hours, travel times to and from the area, and security reasons.

Following the advice of local leaders and research assistants I programmed each session of interviews from 8 am to 6 pm on Saturdays, Sundays and bank holidays, as otherwise it would become more difficult and unsafe to travel to Bogotá. On fieldwork days, I met with research assistants at 6.30 am as average travel times from Bogotá to the settlement, even on weekends, ranged from an hour to one and a half hours. With an average of 45 minutes per interview, it was possible to do between four and five interviews per day. This had limitations in relation to the sample units I could contact every day. I was present in all interviews, always accompanied by one of the research assistants depending on the neighbourhood. Only in the areas of El Tanque, Ciudadela Sucre and Villa Mercedes both Laura and Natalia accompanied me due to security reasons, their familiarity with the neighbourhood, and personal interests on local social dynamics.

During the interviews, I guided the conversation and had inputs from the research assistants. They were responsible for recording and taking additional notes, and helped broadening the conversation in relation to specific topics on which they had experience (i.e. crime and security, work conditions, social aid, among others). In all neighbourhoods, we had contact with a local leader, a referee from colleagues in a local organisation, or a previous interviewee in either Laura's or Natalia's own projects. This facilitated the field activities and in most cases, gave us a space to work at and coordinate daily activities, which also helped us to some extent to detach from the status of 'strangers' in the neighbourhoods. In cases where a place for working was not available we used local restaurants and coffee

shops to review the information and taking breaks. In addition, conducting the fieldwork on the weekends allowed me to progress with transcripts and analysis of information during weekdays, as well as conducting most of the expert and government actor interviews between visits to the settlements. I transcribed some of the interviews and selected others per their relevance to be transcribed by the research assistants.

In this period, I also carried out direct observation of the commuting practices of the residents of one of the neighbourhoods in the sample, Bella Vista. I selected this neighbourhood because some relatives, namely my mother's aunt and cousin, live in it. After I explained the objective of the research and my interest in Soacha they agreed to introduce me to a local leader and neighbours, and allowed me to stay two nights for my observation exercise. This is the only part of the settlement research that took place on weekdays as I was interested in learning about practices for reaching work and other essential activities. Between May 5th and 7th I stayed at the settlement overnight, traveling in the early morning with a group of residents to their work place, mapping their routes and observing the paths and strategies they selected for traveling to and from Bogotá. These exercises took place between 2 and 6 am, as the nature of the work of some of the residents required them to start at very early hours, and between 5 and 9 pm depending on the group or individual I was following. I used the periods between the observation sessions to hold open conversations with the people involved in the exercise in relation to the issues of transport, their perceptions and its relevance in their daily lives. Results from this analysis are summarised in Chapter 6 and 8.

By the first week of June 2013 I had completed the interviews and observation sessions in the settlements. In the two months that followed mid-July 2013, I continued the interviews in the remaining settlements of Julio Rincón and Villa Mercedes. These neighbourhoods provided interesting contrasts for completing the collection of information as Julio

Rincón is one of the oldest neighbourhoods in the research area, also regularised, while Villa Mercedes is a recent development in an area of high landslide risk and difficult access, which also presents some of the most acute conditions of crime in the area. While Julio Rincón was covered in one weekend, Villa Mercedes required two weekends. These interviews were held under similar conditions to the previous neighbourhoods. However, considering limitations for accessing Villa Mercedes we sought support of a local NGO, Techo, with whom I had collaborated in a previous research. We were accompanied in the way to and from the settlement by volunteers from the NGO and residents, and the interviews were held in a community centre built by the organisation to coordinate their activities. In addition, timespans for working in the area were considerably shorter than in the other neighbourhoods for security reasons, which required us to do the interviews in teams of two. During this period, I revisited some of the neighbourhoods I worked on during the previous months, discussing some of the preliminary results of my analysis up to that date.

4.4 Criteria for the selection of study neighbourhoods

The research is mainly concerned with the development of travel strategies under different conditions of the built environment, accessibility and socioeconomic characteristics, exploring how people marked by different types of disadvantage face the risk of becoming socially excluded. In previous research I had studied low-income areas of Bogotá, for which I was familiar with some of their characteristics when reflecting about potential cases for analysis of dynamics of transport and social exclusion in a rapidly developing city. However, Soacha's geographies and morphology, added to a palpable dependency on Bogotá though also clear administrative separation had made my research gravitate towards Cazucá. A central challenge in the development of the research was the selection of neighbourhoods with similar conditions of social disadvantage but that experienced different levels of access to infrastructure and

services, social conditions and limitations for mobility, providing an adequate combination of characteristics to test my hypotheses based on an overall understanding of the research area. Despite my engineering background and greater familiarity with quantitative methods, considering the scale of informal urbanisation in Soacha a statistically representative sample was beyond the time and resources available for the research. Based on this I defined the following criteria during the early stages of the field visit for selecting the neighbourhoods of study:

a. Distance to the main highway in Soacha and border with Bogotá:

Distance is one of the most straightforward proxies to accessibility. On average, the distance between Cazucá and Bogotá's city centre is approximately 15 km. However, considering conditions of the built environment (i.e. insufficient road infrastructure and challenging topography), local access to transport services that connect to different areas in the city, available either in close neighbourhoods of Bogotá or Soacha's highway, becomes determinant in defining travel practices. I selected neighbourhoods with different straight-line distances between approximate geographic centres of potential neighbourhoods and two fixed points of reference in the municipality: crossing of Soacha's Highway with Avenida Terreros, and border crossing at Carrera 75B in Caracolí (see Figure 4.1). These reference points mark the main access points to and from Bogotá from an infrastructure, administrative and/or transport supply perspective. An example of the use of this criterion in the neighbourhood of Ciudadela Sucre is shown in Figure 4.2.

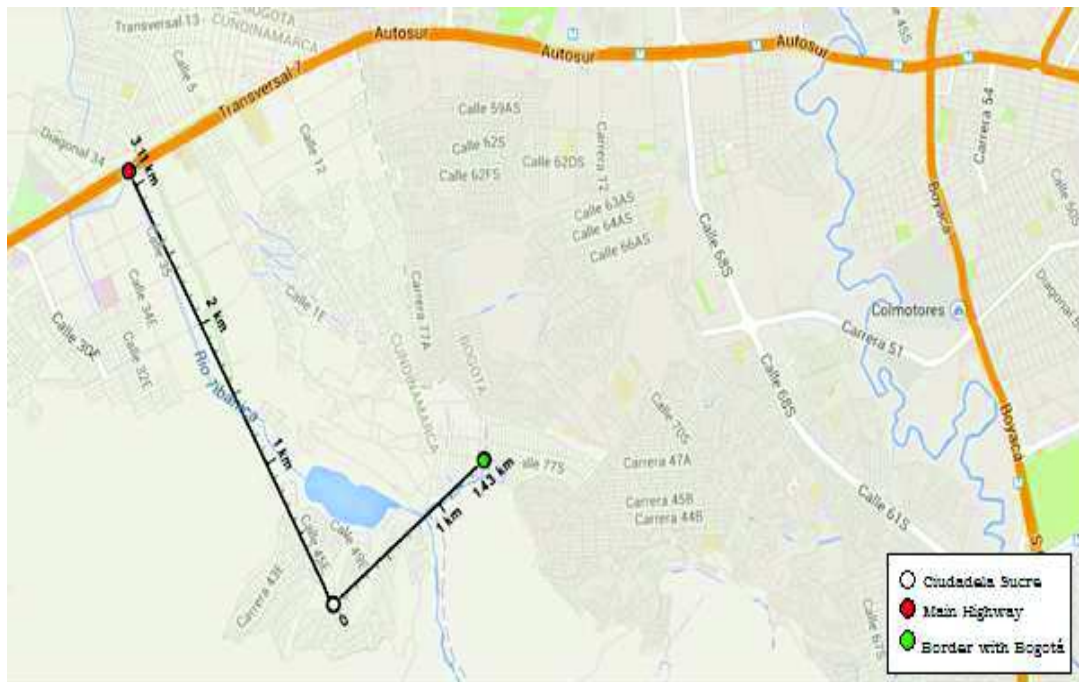


Figure 4.2 Euclidean distance to the administrative border between Bogotá and Soacha's main Highway from the centre of Ciudadela Sucre

Source: Own elaboration

b. Topography:

A second feature closely linked with access to and from the neighbourhoods of study is the topographic profile of the surrounding area. Changes in elevation and steep surfaces not only increase environmental risks (landslides are a frequent danger in most of the Comuna), but they constrain infrastructure development and transport service provision, becoming an important barrier for local accessibility. This criterion is closely linked with the distance to main points where motorised connectivity is possible, marking differences between neighbourhoods in relation to their local accessibility. Figure 4.3 shows a topographic profile of the distances from Ciudadela Sucre to the border between Bogotá and Soacha and the main highway.



Figure 4.3 Topographic profile between Soacha's main Highway and administrative border with Bogotá through Ciudadela Sucre

Source: Own elaboration

c. Level of formalisation/consolidation:

Practically all neighbourhoods in the general research setting are of informal origin, as defined in Chapter 1. However, given the incremental development of settlements in the area towards the hills and the border with Bogotá, different neighbourhoods are at different stages of the process of becoming regularised and thus present different access to formal utilities and infrastructure. Additional details about these differences are given in Chapter 5. , as it was later confirmed during field observations, formalisation is associated with access to better quality of the built environment, including local road access, which facilitates some levels of local mobility, and overall is part of criteria used in the definition of public transport, especially by Transmilenio. This means that in most cases, formal public transport does not service informal neighbourhoods because the infrastructure available does not allow circulation of the bus fleet they operate or entails considerably higher maintenance costs given the poor quality of the infrastructure and faster damage to the vehicles. In addition, it is hypothesised that quality of the built environment and favourability of

local connectivity are related with the condition of 'peripherality' in relation to the centre of Soacha and Bogotá.

The layout of the informal settlements in Cazucá responds to the topography of the area, shown in the previous section, especially those areas urbanised by pirate developers. Most neighbourhoods in Cazucá show a disorganised, spontaneous and dense occupation. This has led to an irregular landscape that shifts rapidly from shanty towns to isolated housing units that cling to the hills with increasing difficulty and lower access as they reach closer to the top. Figure 4.4 shows the surface layout of the area highlighting the limits between Bogotá and Soacha, and an illustration of some recent developments in Cazucá.



Figure 4.4 Administrative border and physical layout in Cazucá

Source: Acevedo et al. (2012).

Photo: Author

In this regard, as shown in Figure 4.5, formalisation alone is not a sufficient criterion for selecting neighbourhoods, so I decided to complement it with a proxy of urban consolidation. This aspect of the selection of study settlements allowed me to better-define the borders between seamlessly continuous urbanisation for practical purposes and identify changes in

relation to improvements in self-help housing and access to formal and informal networks of transport services, utilities and public amenities, as well as social services.

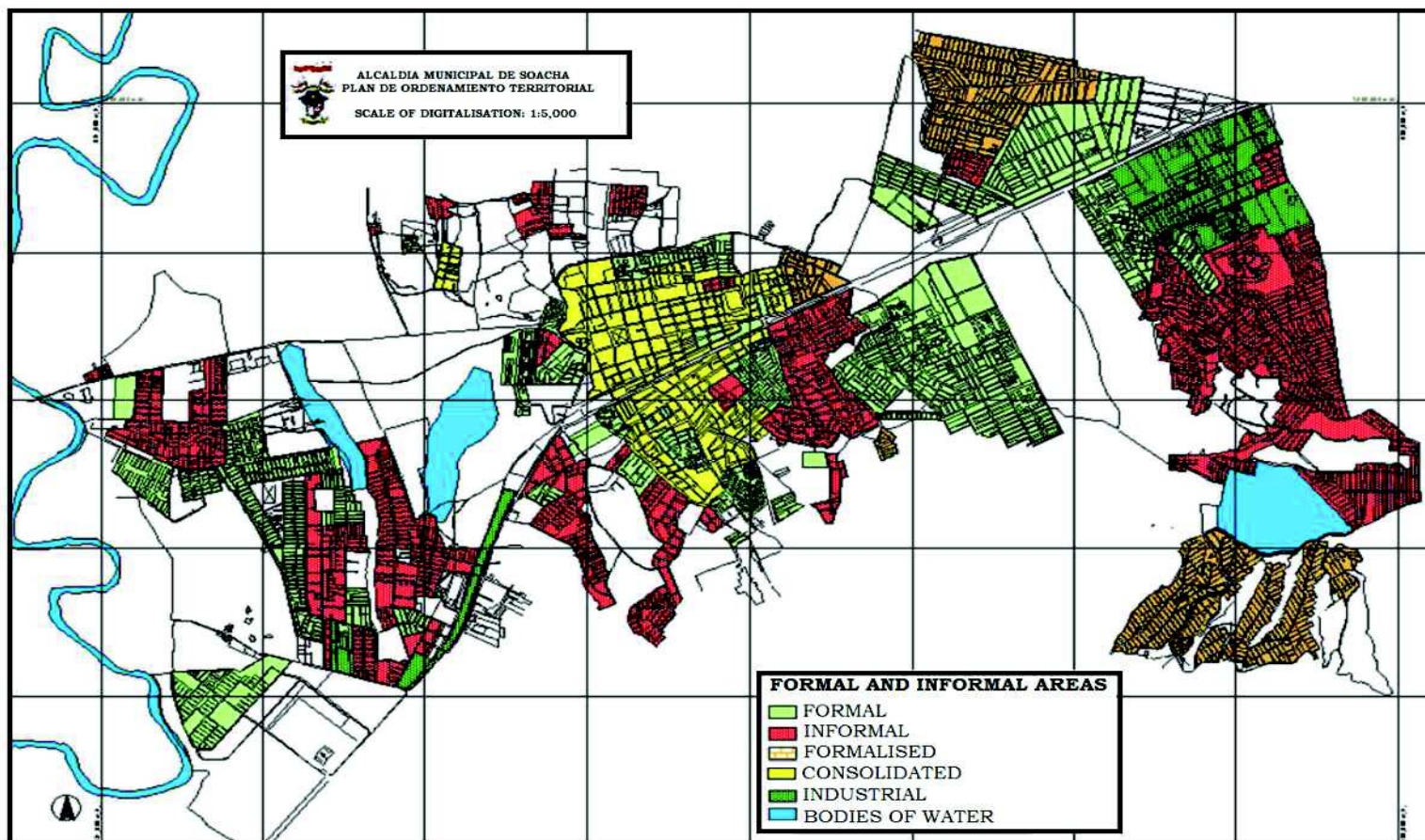


Figure 4.5 Formal and Informal areas as identified by the local government

Source: Government of Soacha (2009)

d. Socioeconomic stratification/access to public utilities and infrastructure

In Colombia, one of the most commonly used socioeconomic indicators is spatial stratification of neighbourhoods. Although referring solely to built environment features of dwelling and streets (Alzate, 2006), this serves as a proxy to levels of income and overall socioeconomic characteristics and so is used for setting user fees for utility services. In Bogotá, strata 1 and 2 are a good proxy for the location of low-income areas while areas or dwellings classified as 4, 5 and 6 tend to be middle to high income (DANE, 2013). This makes stratification a commonly used metric for differentiating population categories. However, the area of Cazucá and overall its surrounding settlements all belong to strata 1 and 2, or have not been classified by the stratification system due to their informal condition. In this regard, although it was possible to differentiate some comparatively 'better-off' neighbourhoods like Julio Rincón through this and previous criteria, it was necessary to use additional information to incorporate a socioeconomic proxy to the selection of specific case studies. As shown in Figure 4.5, one of the main issues in the area is lack of coverage of water and sanitation, which is by far a more critical condition of poverty than what stratification can reflect. In addition, the figure also shows differences in access to water and sanitation between disaggregated units within Cazucá, which provide additional elements for identifying specific cases for study.

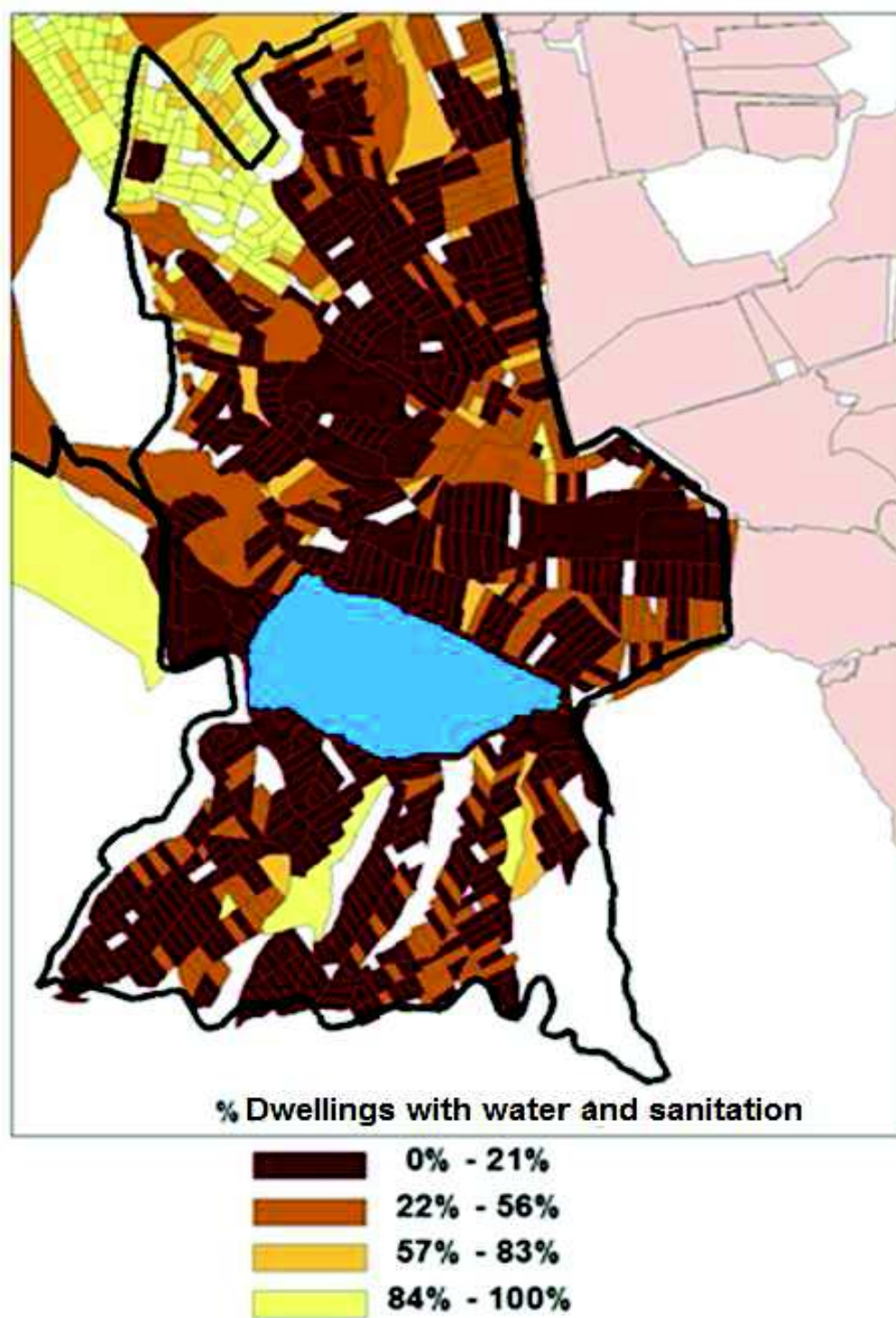


Figure 4.6 Coverage of water supply in the study area

Source: DANE (2005)

These criteria were instrumental in identifying settlements that although they share similarities in relation to general location, socio-demographics and availability of supply transport to and from Bogotá, have relevant differences in terms of the built environment, local perceivable accessibility and relative location (and power) within the larger research setting. The challenge, once having identified the aggregated areas depicted in Figure 4.3, was to break them down into more specific neighbourhoods that comply with these criteria, trying to make the selection process as objective as possible within the research limitations. Having contrasted the geographic information for an initial sample of 20 neighbourhoods in Soacha and 15 in Bogotá, and considering practical and risk-related constraints raised with help of the research assistants, I selected nine settlements in which to carry out the field research as shown in Figure 4.6.

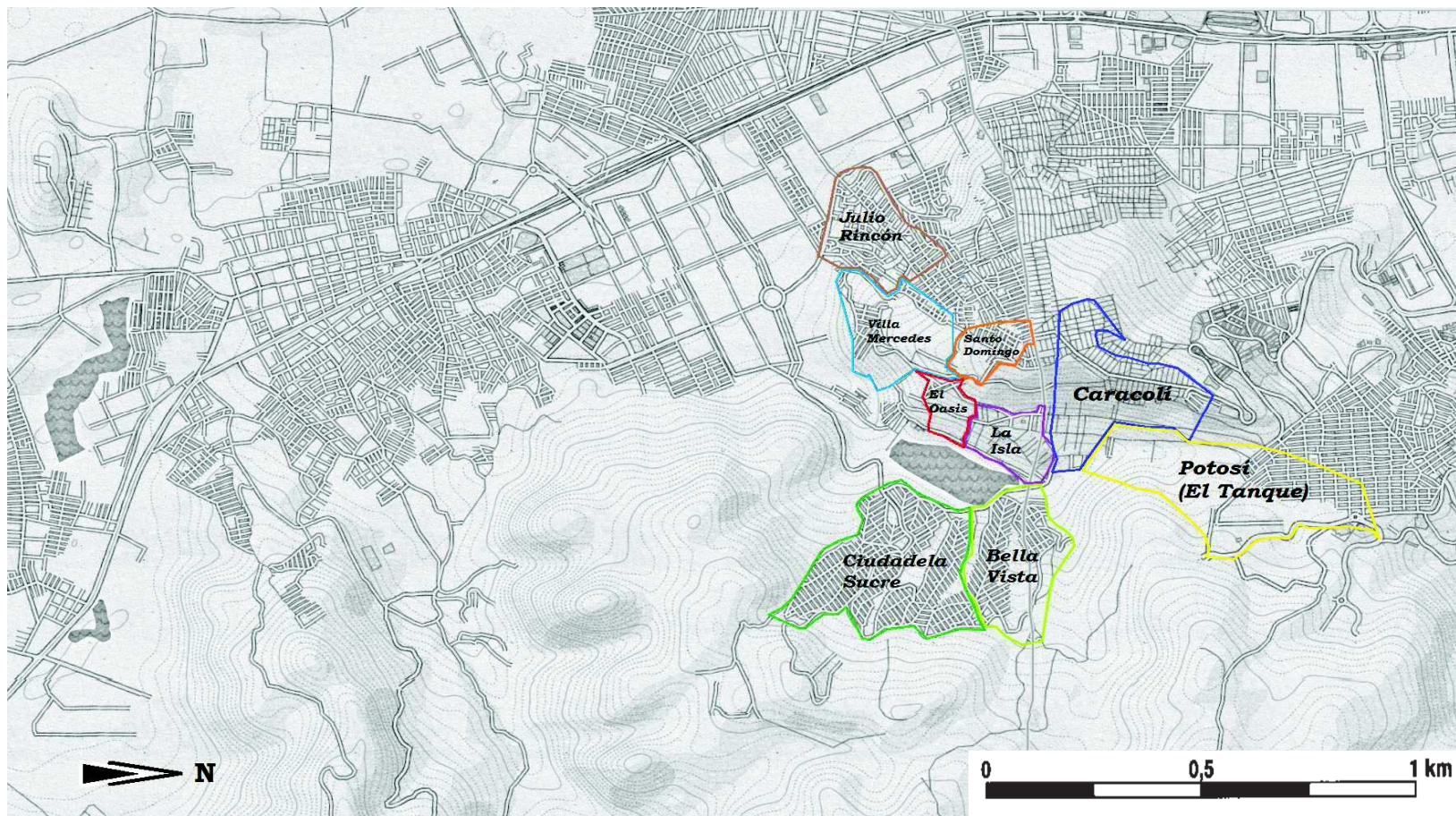


Figure 4.7 Soacha: Selected neighbourhoods of analysis

Source: Own elaboration

4.5 Sampling strategy and challenges for selecting informants

Having selected the neighbourhoods of analysis I re-examined available information at disaggregated levels. Data from the population census of 2005 and the travel survey of Bogotá and its surrounding region for 2011 were useful in identifying an approximate of the total population of analysis. Considering the levels of consolidation of the selected neighbourhoods, aggregated population ranges between 15,000 and 20,000 people. Estimates from the Municipal Development Plan (Government of Soacha, 2008) estimates population in Comuna 4 to be around 70,000 inhabitants. Considering, as it was explained earlier, that such a scale would render a quantitative instrument unfeasible, it was decided to adopt a qualitative approach using semi-structured interviews.

Three categories of target informants were defined for research in the settlements: residents, transport providers and local leaders. From the pilot study, I reached saturation in responses at seven interviews which allowed to define a target sample size between six and ten respondents. At first, I adopted a systematic method for selecting households using a two-way sampling system based on definition of blocks and households. At this stage, it becomes relevant to clarify that neighbourhood boundaries in Figure 4.6, although building on official records and administrative boundaries, also respond to a practical definition of the extent of homogeneous areas under the criteria outlined in the previous section. In this regard, neighbourhoods were divided into blocks, estimating an average number of households³⁰ per block based on field observations of randomly selected neighbourhoods during the pilot study. Depending on the neighbourhood, blocks had between 15 and 20 households, which I

³⁰ A household is defined based on DANE's definition of a unit of residents that share the same kitchen and food regardless of family connections.

numbered to select households for interviewing. I selected one in each five blocks starting with a random number between one and five, applying the same logic for selecting the households in each designated block.

The systematic sampling method was largely implemented throughout the research area for the resident category. However, I sought a diversity of actors from across different levels of the occupations, travel characteristics, physical conditions³¹, life-stages, and power within the local communities. In this regard, in each of the neighbourhoods we held a pre-fieldwork meeting with local leaders which helped identify specific households and individuals that might present some features of interest. This was useful for identifying residents with disabilities, transport providers and other local leaders. See Appendix A for a breakdown of the categories and geographical distribution of the sample. The interviews enquired about the profile of respondents, income levels, travel and activity patterns and perceptions of connectivity, the state of supply, informality and access. In most cases, saturation was reached with the interviewed sample. However, in some specific neighbourhoods, time limitations and security constraints made some areas unavailable and made sufficient sampling unfeasible.

In addition, not all potential respondents at randomly selected households were open to be interviewed. This can be associated, as was sometimes explained by people refusing to answer my questions, to frequent social research exercises at all scales conducted in the area since its early years. , some residents of the neighbourhoods have grown tired of researchers, NGOs and government representatives, asking about their conditions and life patterns without visible use of such information or change in the development of the Comuna. Refusals to be interviewed by some

³¹ These included people with disabilities and elderly residents that had to be identified with help from local leaders and other respondents.

households can also be related to the influence of groups with different power in the neighbourhood. Criminal organisations are but one example of groups whose presence prevents people from revealing some information. Time constraints were another challenge, as some may be unavailable even during the weekend. Interviews had to be either rescheduled or the process of selection had to be repeated. These limitations were addressed through convenient sampling based on previously identified interviewees or referencing from local leaders and social organisations, which allowed me and the research team to tap on the reliability of third parties and helped people feel more comfortable with us during the interviews.

4.6 Description of qualitative methods

Quantitative analysis carried out as part of this research was based on semi-structured and open-ended interviews, as introduced during this chapter. As shown in Appendix A, the major source of information out of residents of selected sentiments that provided detailed information on their travel practices, household structure, and living conditions in relation to the built environment and pertinent dimensions of social exclusion. The design of the interview thus builds on the identified literature in relation to transport and social disadvantage, and research exploring transport-related social exclusion.

In this regard, in-depth interviews sought to identify perceptions and practices in relation to the following points.

- Spatialities: relative location to centres of employment, to relevant places in the municipality, and in relation to the city of Bogotá. Satisfaction with location, perceived advantages and disadvantages, and interpretation of their own accessibility to self-identified opportunities throughout the region.

- Household characteristics: composition of the household, distribution of roles and responsibilities, income and its distribution, type of opportunities/facilities that are relevant for the household, social and family relations, distribution of time on daily and occasional activities, migration, type of housing and tendency, and socioeconomic characteristics of household members.
- Built environment: perceptions of infrastructure, urban amenities, quality of the environment in the neighbourhood, characteristics of the streets, and conditions for local access.
- Social dynamics: perceptions of security, availability of social security, power relations in the neighbourhood and the municipality, identifiable groups and organizations with presence in the neighbourhood, perceptions of community life and cohesion, perception of social position in the region, relationships with the state and other households.
- Transport and mobility: travel practices to reach self-identified opportunities and destinations, perception of relevance of transport in daily life, relevance of transport in household dynamics, identified obstacles for mobility, perception of transport supply, perception of regional accessibility, individual and community strategies for securing access and mobility.

Issues beyond the guideline interview were raised by many interviewees, often related to aspects not entirely covered by the conceptual interpretation of social exclusion (see Chapter 8). Qualitative information helped enrich inferences based on secondary information, which was also contrasted with interviews with local leaders and transport providers.

Interviews with individuals in the second and third categories on Table 4.2 inquired with respondents about similar issues to those asked to residents.

Some of the key subjects covered in these interviews are related to the interpretation of travel needs from the settlements of study as well as the map of organisations, both formal and informal, involved in the provision of infrastructure and public transport services. In the case of local leaders, the discussion was framed from an urban perspective with the objective of minimising biases towards transport. In this regard, respondents were asked to identify conditions of the built environment, what they perceived as priorities for intervention by the local government, legal and illegal groups and organisations with presence in the neighbourhoods and their level of influence of power, and specific conditions of local accessibility and interpretations of how transport operates. Transport providers, on the other hand, were asked specifically about their activity, the parameters under which they operate, institutions with which they must interact, their perceived power at the local and municipal level, constraints, risks and motivations of their work in the area of study, as well as interpretations of travel needs of the population and how they respond to them.

Appendix B outlines a detailed list of interview topics and the original interview schedule. While the analysis of the contents was a relevant goal in the design of the interview, the analysis of notes, recordings, and transcripts intended to categorize and deconstruct the responses on the seven dimensions of social exclusion defined by Church, Frost and Sullivan (2000) shown in Chapter 2 reformulated for this research. In this regard the methods for analysis of qualitative information are strongly related to conceptual interpretations of the research subjects and their operationalisation as detailed in Chapter 8.

4.7 Method of analysis of resident interviews

The main input for the analysis is data from semi-structured interviews described in the previous section, which was used to carry out qualitative content analysis (or QCA). QCA is described by Hsieh and Shannon as “a

research method for subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (2005, p. 1278). Content analysis refers to a variety of analytic methods that can go from intuitive and interpretive examination of data to systematic textual analyses (Rosengren, 1981). Depending on the object and purpose of the research, approaches to content analysis may vary substantially (Weber, 1990). This attaches a considerable degree of flexibility and adaptability to QCA that has led to its application in a broad range of disciplines. However, this same feature may also create lack of consensus in relation to a practical definition and methodologies that may have limited its widespread use in certain areas (Tesch, 1990).

In transport research, the use of qualitative information in the examination of transport policy, disadvantage and exclusion-related issues has been relatively common since the early 2000s particularly in the European context (Hamilton & Jenkins, 2000; Hine & Mitchell, 2003; Johnson & Herath, 2004; Currie et al., 2009; Uteng, 2009; Delbosc & Currie, 2011a, among others). However, the use of content analysis to examine qualitative data has been largely circumscribed to analysis of the rhetoric or urban transport policy and study of public participation in transport planning that build on media and policy documents (Bickerstaff, Tolley, & Walker, 2002; Ryley & Gjersoe, 2006; Lowry, 2010; Vigar, Shaw, & Swann, 2011; Wang, Huo, & Arora, 2011; Hodgson, 2012). A recent study applies content analysis to examine dimensions of social exclusion in entries of blog posts referring to aspects of a Bus Rapid Public transport system currently in operation in the city of Cali, Colombia (Casas & Delmelle, 2014). Despite these advances, a research of the nature proposed in this document has not been carried out before in the Colombian, and perhaps Latin American context. Previous work on social exclusion in developing contexts is limited in number and has used both qualitative and quantitative measures

alternatively without reaching methodological consensus. This makes the use of qualitative information and methods of analysis a pertinent approach.

There is a variety of methods available for the qualitative examination of text data that include ethnography, grounded theory, phenomenology and historical research among others (Hsieh & Shannon, 2005). Considering the focus of the analysis on transport-related social exclusion and the state of the art both internationally and in Latin America, I selected qualitative content analysis as the main method for analysis. In her overview of measures of exclusion used in transport, Stanley identifies a lack of an “established and verified package of measures of social exclusion and social capital, there being a need to first craft the definitions and measurement tools” (2011a, p. 78). In the same document, it is suggested to build on measures and definitions used by leading researchers, the better grounded on theory and supported by extensive literature, and that can be as policy relevant as possible and can maximize clarity and simplicity without compromising research integrity (Stanley, 2011a). Building on these principles, I chose to use the seven dimensions outlined by Church, Frost, and Sullivan (2000) and to apply qualitative content analysis to explore to what extent these are present on the travel and access experiences of residents in Cazucá.

Studies that apply qualitative content analysis focus on the characteristics of language as communication, paying especial attention to the content or contextual meaning of text data (McTavish & Pirro, 1990; Tesch, 1990). It is an appropriate approach for the analysis of data obtained from narrative responses that can come from open-ended surveys, interviews, focus groups and observations (Kondracki, Wellman, & Amundson, 2002). Qualitative content analysis examines language intensely with the objective of classifying large quantities of text data in an efficient number of categories that reflect similar meanings (Weber, 1990). Such categories can represent either explicit or inferred communication as long as the

information in each contributes with knowledge and understanding of the research issue (Downe-Wamboldt, 1992, p. 314).

Qualitative content analysis allows researchers to reach a systematic description of the meaning behind qualitative information and can be either inductive or deductive (Schreier, 2012). The inductive category seeks to extract theory from the data, while the deductive approach works best with existing theoretical formulations that drive the different aspects of analysis. According to Hsieh and Shannon (2005), the deductive or directed approach to content analysis can contribute to existing theory and research about a given phenomenon, which may be incomplete or would benefit from further description. The central goal of this approach is to corroborate or extend conceptually existing theories and frameworks, using them as input to focus the research question. In addition, theory can inform about relationships between variables and help define initial codes and interrelations between them (Mayring, 2000). The initial coding system conventionally begins by identifying key concepts or variables and then determining operational definitions from theory (Potter & Levine-Donnerstein, 1999). Although my objective is not necessarily to 'prove' Church, Frost, & Sullivan's (2000) postulates in the Colombian context, I use these as the starting point of my analysis. Building on the process of initial coding of the deductive category, I bring the seven dimensions of social exclusion drawn from the theory in connection with the text for exploring further aspects of each individual dimension and the relations between categories.

The process of analysis of the data included the selection of a unit of analysis, in this case, transcripts; creating categories; and defining themes. The initial step allowed to separate the material into more manageable units, particularly considering the volume of the data. This allowed me to define 67 units of analysis (see table 4.2) from the interviews with residents. In the second step, creation of categories, I used the general structure of

the interview to define categories: Individual characteristics, household characteristics, location characteristics, neighbourhood perceptions, needs for mobility, assets for mobility, perception of mobility, perception of the city, priorities at the individual and household scale. In line with the theory on qualitative content analysis, these categories are useful as they allow to identify content with “similar meaning and connotations” (Weber, 1990, p. 37) that is “mutually exclusive and exhaustive” (Delfico & Crowley, 1996, p. 20). This allowed me to break down the units of analysis into smaller inputs that were systematically analysed to determine meaning and interpretation of the data (Cavanagh, 1997). The third step was the definition of themes, which allowed the analysis to link the “underlying meanings together in categories” (Graneheim & Lundman, 2004, p. 107). For defining the themes, I used the same notation as in the study of Church, Frost, and Sullivan (2000) (geographical, economic, facilities-related, physical, fear-based, spatial and time-based exclusion). This approach allowed me to extract structural meaning essential to present the research results (Streubert & Carpenter, 1995) and identify recurring regularities identified within and cutting across categories (Polit & Hungler, 1999).

4.8 Limitations of the qualitative instrument

Previous research experience on the issues of transport and mobility was useful for this research. One of the main advantages of discussing transport-related issues, is that ordinary people can easily relate and understand the general concepts governing these dynamics. However, these characteristics can entail limitations regarding reliability of the information and biases of interviewees. In some cases, it was discernible that interviewees withheld or modified information based on personal biases, fear, or expectations regarding the use of the research. Considering that the interview exercise took place at a time when expectations related to the development of a potential cable-car in the area where high and official studies were being carried out, some people probably tended to

overstate the relevance of transport or exaggerate the extent of problems related with it. Similarly, taking into consideration that the interview inquired about 'sensitive' subjects such as crime and identification of areas and groups considered dangerous, in some cases interviewees provided contradictory or probably even false information. Finally, in relation to household dynamics and responsibilities, it appears that male-dominated households were commonly present in the sample, in which women were either prevented from being interviewed or refused to talk about specific issues.

Some of the limitations were addressed by revisiting some of the households at different times and conditions, and through the intervention of the research assistants (e.g. women felt more comfortable being interviewed by another F; we revisited households when the husband was not present or interviewed members separately; the introductory statement of the interview was reframed to detach the research from a transport-specific work and present the researchers as not linked with decisions made in relation to infrastructure; and visual aids as maps and photographs were used to aid the respondents identifying particularly problematic information). In addition, in some cases it was necessary to interrupt the recording or to erase it and rely solely on notes for people to feel comfortable and provide for the details. The commitment of anonymity of respondents, backed by the support of local leaders, also contributed to obtain more reliable information. Additional issues in relation to the use of local expressions and meaning of practices and places reported by the interviewees was addressed at an early stage with help of the research assistants and insights from the pilot study.

In relation to local leaders and transport providers, some biases were identified concerning the expected use of the information. The position of 'outsider' proved particularly challenging when interviewing informal providers of transport, who were concerned about being recorded providing

detailed information regarding a service labelled as illicit or at least not officially sanctioned. This issue had to be addressed by interviewing people at different areas of the transport business, as well as by asking overlapping questions to confirm or clarify the most relevant information for the research. As shown in Table 4.2, interviewees in all categories requested not to record or to be completely anonymised in order to provide information. Some questions related to political participation and power relations were generally not addressed by local leaders and there were contradictions in relation to power relations in the area. This however shed some light on the influence of administrative, physical and social borders on the functional structure of the research area as shown in Chapters 6, 7 and 8.

4.9 Ethical issues of the field research

My motivation for analysing social issues in transport is rooted in my experience as a transport planner and researcher. I progressively shifted from technical concerns to the analysis of the consequences of transport, first from a project-based standpoint and later from a wider policy perspective, in pursuing the goal of enabling people to achieve a better quality of life. The increasing relevance of transport issues in Bogotá has influenced my concern with local development and its consequences. Having grown up, trained as a transport planner and engineer, and acquired most of my professional experience in the city, I have a strong interest in addressing local issues. In addition, I align myself with the belief that transport mobility is a fundamental asset in sustainable and inclusive development and as such, it must be analysed from a perspective of development studies as much as it is from technical disciplines. This, in order to provide adequate information and empirical evidence that support transport's role in addressing social inequalities deriving from specific models of urban development and planning. Furthermore, the conjuncture of developing the research at a development-centred department of a

leading academic institution of the 'global north', without being personally inclined to defend such differentiations, is in itself a statement of the relevance of building on consolidated knowledge, tools and spaces for reflection to provide appropriate elements for local policy and decision makers to address site-specific social concerns in the context of research.

Building on these ideas, my research gravitated towards exploring mobility practices at the micro level after recognising the predominance of aggregated information and formality governing planning and development of local transport and infrastructure. The relevance of understanding local practices as a result of allowing local communities to assess their own needs and act according to their own resources and constraints to meet them as highlighted by numerous scholars of the urban (see for example Turner, 1976; Chambers, 2002; or Roy, 2005), inspired me to explore local mobility practices as a potential missing link in addressing severe social inequalities deriving from transport. In addition, increasing concern with rapidly consolidating poverty and vulnerability in increasingly disconnected areas from the expanding Latin-American city, as presented in the first section of this chapter, inspired me to concentrate on low-income areas experiencing poverty in their built environment and integration to the city where they chose, or were forced, to live. These ideas are central in defining my approach to the local community.

A central concern in defining the ethical implications of my research is my position in the field. Despite being a national of Colombia, and even local at the city level, it was difficult for me to be a 'neutral' agent in the research setting. I detached myself from political and institutional associations, identifying only as a student conducting a purely academic research, not an uncommon condition of 'outsiders' in the eyes of the local community. However, while communication, language-wise, was not an issue, the 'outsider' label, marked by distinctions of class, and ethnicity influenced my interactions with some interviewees. This was evidenced by the attitudes

of some respondents that tended to exaggerate their conditions of poverty or overstate the relevance of transport to promote the need of government intervention they believed I could facilitate. Other respondents enquired about my personal contacts in the expectation of building connections with civil servants, non-governmental organisations or private sector in order to promote work in the area under the premise of increasing their visibility to foster further social aid. In these cases, I reiterated my position as a student developing my thesis, and clarified that I was in no position to influence policy decisions or infrastructure either in Bogotá or Soacha. Despite isolated issues of the aforementioned nature, I was fortunate to find many respondents that were open and visibly sincere, sometimes projecting satisfaction in helping a student understand the local issues in their community.

In addition, despite my intention of being a 'neutral agent' in the research setting, in different occasions the order in which I visited some neighbourhoods constrained my visit to others. This as differences between community leaders provided difficulties for approaching one or other side of a seemingly personal issue. This required reprogramming field activities or made some local leader and even some residents cautious and reserved. In addition, my questions regarding issues like crime and security led some interviewees to ask me if I was an agent of the police or another security agency, to which I showed documentation supporting my student status. Despite my efforts to be neutral throughout my research, it was almost impossible to detach completely from my own conditions or even perceptions from the people I was interviewing. Furthermore, it was clearly difficult for me to develop my own perceptions in relation to a given issue in specific communities and to make value judgments of apparent 'injustices' arising from local conditions and influence of specific groups in the area of analysis.

In relation to information management, as highlighted in the previous section, recordings were only carried out when authorised by the interviewee, interrupting or ending the recording when sensitive issues were raised upon request by the respondent. Evidence of family violence or explicit references to criminal acts that were too sensitive to be reproduced were omitted to protect the interviewees. The research assistants and I were always permitted to take notes and photographs were taken when we were granted permission to do so. I decided not to include most of the photographs in the thesis because I did not request permission to use them. Only photographs of public spaces and those of private property where permission was obtained are included in the thesis.

I feel compelled to make my findings useful to the local communities and make a contribution to them. Although I have made efforts in preparing a briefing with relevant information to make available to local leaders and decision makers, I have little to no control of the usage and interpretation of the information. In a recent visit to Colombia in the last year of the research I arranged a meeting with some of the local leaders and a couple of non-government agencies to hold a brief discussion in relation to the information produced as part of the research. I received useful feedback from the audience. However, although some leaders have examined the information in detail and used it as an asset to plan community initiatives to improve connectivity and address local obstacles for mobility, in other cases this was not used, kept as part of local records or forwarded to local organisations or activists involved in mobility and urban issues.

I faced a struggle in relation to confidentiality, being consistent with the confidentiality agreements I reached with all interviewees and using only forenames in cases where people agreed to be mentioned in the research to give legitimacy to the findings. In the case of local leaders, I applied the same criteria, always preferring to not reveal other individual details. In the case of government agents, I referred to interviewees only by position, as

instructed by most of the interviewees in this group. This also applied to the observation exercise I conducted in one of the settlements by accompanying some groups during their daily mobility practices. The group requested almost unanimously not to be mentioned by name although they were supporting me in using their experience to analyse the relationships between local practices and development of the built environment in their neighbourhood. In this exercise only my relatives wanted to be explicitly included in the research document, which I have happily included in the acknowledgments of this document.

My objective with the thesis was to contribute to the understanding of mobility practices by low-income communities and their relation with urban development and spatial planning from a holistic approach rooted in local perspectives. The use of interviews and observation techniques was instrumental in achieving this goal. Different ethical concerns arose from my selection of methods and activities in the field. However, whenever these took place I tried my best to address them in a sensitive and responsible fashion.

Chapter 5 overviews the governance and administrative configuration of urban areas at the national level and in the case of Bogotá. The chapter also shows the planning of the city from the mid-1950s as there were relevant precedents for the current interaction with Soacha. Finally, it includes a reflection of the implications of Bogotá's development and planning for other municipalities in its unofficially constituted metropolitan area.

5 Governance, fragmentation and ‘peripherality’

Building on a comprehensive analysis of transport policy in the United Kingdom and the United States, Lucas (2004) suggested that it is necessary to consider transport as a social policy issue in order to address social inequalities and exclusion related to it. Such an objective, however, involves going into great lengths towards transforming ideologically, legislatively and financially transport policy in order to achieve meaningful reductions in ‘transport poverty’ (Garcia & Rubin, 2004; Lucas, 2004). This can become a great challenge even in contexts with strong legislative and regulatory frameworks and support from solid financial mechanisms and institutions (Gwilliam, 2010; Kennedy, 2004). In this context, an understanding of institutional arrangements and, in general, governance, defined as the process by which different “elements in society wield power and authority, and influence and enact policies and decisions concerning public life, and economic and social development” Williams (2009, p. 606, quoting the International Institute of Administrative Sciences), becomes essential in the analysis of transport-related social exclusion. Such institutional arrangements are not disconnected from the larger political, economic and institutional landscape of the country and its historical evolution, which suggests the need for an, even if brief, exploration of the main milestones in the consolidation of Bogotá’s and Soacha’s current governance structures as presented in this chapter.

Research in developing contexts points at institutional weaknesses and limited ability to respond and manage rising demands for urban mobility as key constraints for sustainable urban transport development in the Global South (Gakenheimer, 1999; Gwilliam, 2010; Brand & Dávila, 2011; Cervero, 2013a). Recurrent issues identified in the literature, as introduced in Chapter 2, are related to limited institutional capacity, which often translates into poor training and education for civil servants, lack of transparency and insufficient experience with urban management, planning

and financing (Cervero, 2013b; Dimitriou, 2013; UN-HABITAT, 2013). In particular, institutional fragmentation in developing cities and tendencies to separate urban functions by sectors creates disconnections between government organisations, “each with its own boards, staff, budgets, and bylaws, (which) often translates into uni-sectoral actions and missed opportunities” (Cervero, 2013a, p. 19). These issues are strongly linked with the Splintering Urbanism thesis, which argues that increasing complexity in mechanisms for infrastructure development and reforms seeking economic efficiency in specific sectors can lead to the bypassing of less-powerful groups in the process of provision of essential infrastructure and public services (Graham & Marvin, 2001). Going back to the hypothesis of this research as set in Chapter 1, the fragmentation and disconnection in governance resulting from lack of coordination and institutional capacity can be connected to the unbundling and splintering in infrastructure networks, which lead to disconnection of particular social groups from the opportunities of society, thus leading to social exclusion. These issues are commonly found in large and mid-sized cities in the Global South, which have been often addresses in research. In the case of Soacha, issues of institutional weakness and fragmentation in governance are likely to be replicated as a result of poor financing and large concentration of poverty and informality, in addition to Soacha’s relationship with Bogotá, which limits further the capacity of the municipality to manage effectively urban transport demand and supply.

Thus, in this chapter I discuss the political and institutional spheres of the planning process in the case study building on context information presented in the previous chapter. Going from the general national scale to the local, this chapter provides an overview of the Colombian political structure and administrative processes, particularly in relation to decentralisation and the role of local governments in the development and consolidation of both Bogotá and Soacha as well as their functional and

institutional relationship. Using both secondary and primary information, I explore issues of politics, jurisdictions, resources and capacity for urban planning and development in the period between the 1950s and 2013, paving the way for the detailed analysis of fragmented transport networks and social exclusion in Cazucá.

According to the Municipal Development Plan of Soacha (Government of Soacha, 2008), the municipality has experienced constant de-institutionalisation of the territory during the past decades, which I interpret in this document as the continuous weakening of the ability of local public institutions to respond to the increasing social and economic needs of the population. This has allowed the development and deepening of many social problems like poverty, insecurity, crime and lack of access to employment and education, and is associated with constraints for urban and economic development. External assessments of the institutional conditions of Soacha support this view. Studies by the Chamber of Commerce of Bogotá argue that Soacha's local administration has failed to grow along with its population and land changes, resulting in problems of politics, lack of transparency in public action, lack of coordination between the actions of public and private sectors and absence of middle and long-term thinking culture in planning and monitoring agencies (CCB, 2005b, 2009). Other works by UNDP, UNHCR and academic bodies make reference to similar institutional weaknesses both locally and at the regional level, pointing at these as critical issues in securing sustainable development for the municipality (UNHCR, 2009; UNDP & Government of Soacha, 2012; Dávila, 2013). The following sections explore the issues of governance and decentralisation at the national, provincial and municipal level, focusing on the local issues of Bogotá and Soacha and their interrelation.

5.1 Decentralisation and Colombia's government structure

Along with the trends on urbanisation and industrialisation outlined in Chapter 3, Latin America experienced notable political and institutional changes that, as Gilbert describes, “have stimulated the rise of democracy at the local level” (2006, p. 392). Democracy has been extended from the national to the local scale, which has led not only to freely elected national governments in most of the region but also mayors and town councils being popularly elected at the local level (Rodríguez, 1997; Ward, 1998; Myers & Dietz, 2002; Ruble et al., 2002; Gilbert, 2006).

These tendencies have not been foreign to Colombia, where the endorsement of a new political constitution in 1991 led to a redefinition of the structure of the state and the political system of the country. Colombia, according to the opening articles of the new Constitution (Government of Colombia, 1991), is defined today as a unitary and decentralised democratic republic whose territory is administratively divided into 32 provinces (*Departamentos*) and the Capital District (Bogotá). With the Political Constitution of 1991, Colombia responded to an immediate need for institutional reform and profound changes in the country's political structure seeking to ensure peace and development after several failed attempts at securing an end to internal conflicts and social unrest (Alesina, 2000). Although Colombia had previously defined regulatory frameworks for the independent operation of municipal governments before the endorsement of the Constitution (Nickson, 2011), a central concern of the 1991 Constitution was strengthening democracy, decentralisation and participation. It sought to do so by granting new political and financial autonomy to local governments, creating modern territorial entities and establishing popular elections for government representatives at the provincial, municipal and local levels (Campbell, 2003).

This new territorial organisation defined municipalities as the basic territorial unit and granted them functions related with provision of basic household services, education and health, infrastructure and regulation of transport services, social housing and other development-related works. Such an administrative division required the creation of local government systems that responded to the objectives of financial and political decentralisation. Colombia's 1986 municipal reform legislation introduced "the most comprehensive range of mechanisms in Latin America for promoting citizen participation in local governance" (Nickson, 2011, p. 15), which was ratified in the new Constitution. As a result, each municipality has a local council elected by universal vote, which exerts legislative functions over its territory and is subject to the Constitution and the law (Government of Colombia, 1991). Such functions include regulation and efficient delivery of services by the municipality; adoption of appropriate plans and programmes for economic and social development and plans for public works; authorising the mayor to enter into contracts and perform functions that belong to the Council under special circumstances; approving local taxes and expenditure in accordance with the constitution and the law; issuing an annual budget of revenues and expenditures; determining the structure of the municipal administration and distribution of functions between its offices, salary scales for public servants, and authorise the creation of mixed companies and state-owned enterprises; regulating land use and monitor and control activities of construction and retail of housing units within the limits of the law; appointing the *Personero*³² for the period prescribed by the law; and issue rules for control and protection of the ecological and cultural heritage of the municipality. These

³² The figure of *Personero* is defined by the Colombian Constitution as a control agent that ensures compliance of municipal governments with the Constitution and the law. This figure is also responsible to ensure compliance with civil rights and proper address of complaints concerning the operation of local administrations. The *Personero* is also responsible to monitor official conduct of elected officials and employees of the municipality.

functions are relevant for the analysis of governance in Soacha and Cazucá as they help understand the implications of levels of representation and participation by local residents of the neighbourhoods of analysis.

The *Departamento* (provincial) government carries out administrative functions, it complements and facilitates coordination of municipal action, serving as the representative of the province's interest and agent of the central government (Government of Colombia, 1991). Each *Departamento* has its own governor for periods of four years, elected by the population of all the municipalities in each province's jurisdiction. From the new constitution, new mechanisms for citizen participation at administrative support divisions were created at the municipal and provincial level, such as local referendums, open town meetings and consultations, public watch boards and a seat at the municipal council (Velásquez, 1998). In addition, all candidates to local executive positions must submit a government programme. If the elected mayor or governor does not implement the programme, the Constitution provides mechanisms for the electorate to remove him/her from office (Nickson, 2011).

As Gilbert (2006) argues in his analysis of the governance of Bogotá, this administrative organisation and political mechanisms for popular participation aim at improving the quality of local governance. In theory, the allocation of responsibilities and financing to sub-nation levels facilitates local participation and increases the influence of citizens over relevant decision-making that affects their lives (van Lindert & Nijenhuis, 2003). The central government provides financial transfers as support for these changes. However, financing of local functions is largely dependent from local sources depending on the size of the municipality (Government of Colombia, 1991).

According to Keiner et al. (2013), implementation of mechanisms for decentralisation can bring about higher levels of accountability and

efficiency in local administrations as well as arguably reduce corruption. Booth, Hanmer, and Lovell (2000) argue that poverty reduction strategies at the national level can achieve better outcomes when implemented by government agencies that are closer to the poor. From this perspective, decentralisation of transport management and development to local administrations is a strategy that increases the likelihood of meeting the mobility needs of urban citizens (Barter, 1998). Studies by international development agencies have supported this view. The 1994 World Development Report advocates for road maintenance decentralisation on the grounds of lower backlogs and better quality of infrastructure (World Bank, 1994). These benefits are potentially transferable to other transport sectors and infrastructure, including public and non-motorised transport (Booth, Hanmer, & Lovell, 2000).

In Colombia, evidence of effective local management in mid-sized and large urban agglomerations throughout the country support the aforementioned objectives and principles for decentralisation (see examples by Velásquez & Stella, 1998; Menegat, 2002; Satterthwaite, 2009; Brand & Dávila, 2011; among others). However, as discussed by Prud'homme (1995), decentralisation can pose dangers in certain contexts, leading to deeper inequalities and inefficiency. Smaller and poorer jurisdictions can suffer disproportionately from lack of administrative capacity and revenues and increase in corruption at the local level. According to the United Nations Human Settlements report of 2013, despite clear examples of innovation in urban transport policies and management in cities like Bogotá and Medellín, the decentralised models of urban transport management used in Latin America tend to suffer from fragmented institutional arrangements, informality and uneven distribution of financing that limits their room for action in responding to the travel needs of the poor (UN-HABITAT, 2013).

However, decentralisation is also argued to have negative implications in three main areas: redistribution, efficiency, and transparency. The first is

explained as the extension of disparities between regions to the local level, which limits the capacity of 'poor' jurisdictions to raise and distribute revenues, thus deepening social inequalities. It is also argued that in a context of lack of adequate planning tools, decentralisation will be unable to better reflect the realities of people than centralised planning, leading to top-down and sectoral decision-making (Dixon-Fyle & Frieling, 1990). In terms of efficiency, at least in developing countries, a large share of jurisdictions still faces the challenge of responding to basic needs related to poverty (i.e. housing, access to water and sanitation, malnutrition, among others), which undermines the potential welfare gains from a decentralised model. Lack of capacity and interest mismatches of local bureaucracy can also impair the former, influencing both allocative and productive efficiency at the local level. A recurrent issue that arises along with decentralisation is the loss of economies of scale that may worsen institutional capacity and other human-resource constraints (Booth, Hanmer, & Lovell, 2000). Finally, transparency can be negatively affected because, contrary to the arguments presented in the previous paragraph, local politicians might be more easily influenced by demands from powerful local interest groups. In addition, given more discretion for local decision-makers than those at the national level, more opportunities to divert resources to services for which kickbacks are higher rather than those with higher demand (Prud'homme, 1995).

Building on the description of the Colombian model and considering the potential benefits and risks of decentralisation, the following sections analyse the effects of the national government model in the Capital Region and examines the institutional and governance conditions for transport provision in Soacha.

5.2 Bogotá's urban governance and planning

Bogotá's current administrative structure is the result of a long process of institutional reforms that had decentralisation and administrative reorganisation at its core, which can be traced back to the mid-twentieth century. Initial steps toward the reorganisation of the administration of the capital territory was characterised by the adhesion of adjacent municipalities to Bogotá. Such reorganisation influenced deeply not only the urban growth of the city, but also its institutional arrangements for provision of essential services like transport and utilities. This part of the chapter intends to reflect on relevant milestones in Bogotá's urban development during the second half of the twentieth century, paying special attention to functional, administrative and physical changes in the city's structure that have affected both the scheme of transport supply for Bogotá and Soacha and governance of both municipalities.

5.2.1. Planning between the mid-1950s and 1980s: Consolidating fragmentation

By 1950, Bogotá's development had concentrated in proximity to the main lines of public transport services that operated during the 1930s and 1940s, dominated by tramway services introduced as early as 1884 and operated by a public company (Pérgolis & Valenzuela, 2007; Silva et al., 2009). However, towards the end of the 1940s the tram started losing its financial and political support because of increasing pressure and lobbying to introduce bus services, a popular technology at that time, as its replacement. This situation worsened after political turmoil and violent riots sparked by the assassination of left-wing populist political leader Jorge Eliecer Gaitán on the 9th of April 1948. This event, among other effects, led to the destruction of nearly a third of the vehicles of the tramway system and the infrastructure in one of its most representative routes, the *Calle Real* (Santa & Salas, 2011), whose demand was later supplied by buses.

As a result, in 1951 the local administration decided to decommission all tramway lines and to introduce a new fleet of trolley and diesel-powered buses operated by both public and private companies (Lesmes & Zambrano, 1988). This marks the public transport transformation from a near-perfect public monopoly in the provision of public transport services to a hybrid structure where private companies supplied a large share of the demand (Rodríguez & Núñez, 2003). In order to maintain its participation in the supply of public transport, the local government created in 1952 the *District's Company of Transport (DCT)* –Empresa de Transportes del Distrito–, a parastatal that operated until 1958 and had its own fleet of electric and fuel-powered buses (Rodríguez & Núñez, 2003)



Figure 5.1 Trolleybuses in the streets of Bogotá

Source: Ospina and Mosquera (2007)

During the military national government of General Gustavo Rojas Pinilla, Bogotá experienced the first process of absorption of neighbouring

municipalities in 1954, which ultimately became part of the current structure of the city. By Presidential decree,³³ six neighbouring municipalities (Usaquén, Suba, Engativá, Fontibón, Bosa and Usme) were annexed to Bogotá, giving birth to the Bogotá Special District. Such process sought to respond to increasing pressure for more efficient urban management of Bogotá's territory and its immediate surroundings due to rapid demographic and physical growth, and limited capacity of local governments in these municipalities to provide adequate utilities and essential services (Botero & Suárez, 2010). This first step towards decentralisation allowed to clearly define an administrative division of the city in zones that preceded the current administrative division, and marked the redefinition of the city's administrative structure including what until that time had been independent adjacent municipalities. Considering the former, it is not surprising that some of the modern local jurisdictions are considerably large in both population and geographical scale.

This antecedent is relevant for this research for two reasons. On the one hand, as explained by Dávila et al. (2006) and Botero and Suárez (2010), the inclusion of adjacent municipalities in the mid-1950s was motivated by demographic, political and administrative reasons related to the definition of a space that could adapt to future pressure for the physical and population growth of the city. On the other hand, it called for a rapid expansion of the existing public transport network in order to provide connectivity to the new areas integrated to the city's functional and economic structure. Unfortunately, these motivations were not interconnected, leading to fast urban development and pressing needs for supply of infrastructure, housing and services without sufficient involvement from the public sector. The new administrative area failed to prepare a

³³ *In the Colombian law, decrees or Decretos are legal designations from the executive power and can be produced at the national, provincial or local levels.*

credible master plan, allowing most growth decisions to remain in the hands of private developers (Cortés, 2005).

The evolution of planning in the Special District is a reflection of earlier initiatives for guiding the development of Bogotá, which included all-encompassing master plans for an orderly growth of the city and its adjacent region. Renowned Swiss architect Le Corbusier developed a modernist master plan in 1951, which introduced the idea of a multipolar regional network for Bogotá and some of its surrounding territories. This, however, was not put into practice beyond the pilot phase.

However, in 1961, through the *Pilot Road Plan* the administration developed the first plan for development of road infrastructure that built on technical studies and appraisals based on the Urban Transport Planning Process (Montezuma, 2005). This plan incorporated some of elements of Le Corbusier's master plan, introducing ring roads and a mixed road network for the city. Some of the most relevant road corridors today in the city are a result of the implementation of this plan, 60% of which was implemented. However, one of the most important recommendations of the plan was the construction of an urban rail system for public transport, which was promptly discarded (ibid).

During the 1960's the city built several main roads as part of a process of modernisation that involved its adaptation for the era of the car. Later in 1972, Currie, a Canadian urban economist and advisor to the President, revisited some of the ideas set in Le Corbusier's plan at the regional scale, introducing them in a study entitled "Fase II", that (Acosta, 2010, p. 19) identifies as: "development alternatives and the necessary support networks required to face the demographic explosion expected at the time". Like its predecessor, this plan was not implemented. However, it provided insights for subsequent sectorial agendas. More recent initiatives reviewed in a following section of this chapter have stressed the need for

metropolitan planning for Bogotá and its surrounding municipalities. However, during the last decades of the twentieth century, the pressure to address the city's immediate problems led to planning initiatives and projects with a more internal and sectorial focus.

Despite lack of a coordinated planning scheme, the boundaries defined for the Special, and from 1991 Capital District, allowed Bogotá to have sufficient room to accommodate its expansion in the following years. The city's population grew from 330,000 inhabitants in 1938 to 1.69 million by 1964, reaching over 5.5 million in the mid-1990s without over spilling its defined borders (Villarraga & Módenes, 2015). According to Dávila (2004), between the 1950s and the 1990s, the population of Bogotá grew to almost ten times its original size while its built area grew at a more moderate pace from 4,000 Ha to 29,000 Ha, positioning itself as one of the densest cities in the region as mentioned earlier.

In the public transport sector, the increase in size of the city's surface area and its population after absorbing adjacent municipalities challenged the DCT to maintain its competitiveness in relation to the private operators. Larger densities in the city centre required a bigger concentration of supply, which limited the presence of public services in the peripheries. By 1954, the DCT owned 15 trolleys and 83 diesel buses, while the private companies operated with nearly double the fleet (Santa & Salas, 2011). The company's inability to extend efficiently its coverage beyond the pre-existent boundary of Bogotá after the creation of the Special District marked the rapid decline of public transport services provided by the city in the following years. While in 1951 the tram supplied 75% of the public transport demand of Bogotá, by 1954 the share of publicly owned services was 30% (Montezuma, 2000). In order to safeguard provision of public services, the Special District sought support from different public bodies, including the National Federation of Coffee Producers which helped acquire new buses in exchange for coffee trade bonds. In 1959, the city created the District

Company of Urban Transport (EDTU) in replacement of the DCT, which operated 87 diesel buses, 25 trolleybuses and 5 petrol buses (Rodríguez Baquero et al., 2003). Despite these efforts, between 1957 and 1967 the market share of the private companies continued its growth, increasing from 62% to 92% of demand coverage. In 1970, in a last attempt to improve its competitiveness in the public transport market, the EDTU put in motion a modernisation plan that included the construction of a large bus terminal, purchasing of 1,000 new vehicles and general improving in servicing and maintenance for the buses. However, private actors contested and sued the tendering process, which was subsequently abandoned (Montezuma, 2000). By 1973 twenty-seven private companies with 6,200 vehicles (95%) and 229 routes (94%), supplied 95% of public transport journeys in the city (Rodríguez Baquero et al., 2003).

Changes in transport services between the 1950s and the end of the 1980s are as much a consequence of financial and operational decisions as they are of the planning of the city, changes in its institutions and governance, and control of its development. Due to its demographic, political and economic relevance (Dávila, 2004), Bogotá has seen a number of initiatives for reforms since the 1950s that were ultimately ratified by the 1991 Constitution and that were operationalised in a latter local decree known as the *Organic Statute for Bogotá D.C. (Estatuto Orgánico de Bogotá -Decreto Ley 1421 de 1993)*. Such reforms, conceived at either the local or national level, included plans, projects or regulations that sought to organise the development of the city in subsequent years within the limits of the national legislation and planning systems in place. In his profile of the city of Bogotá, Skinner (2004) discusses that the economic primacy of Bogotá in the country motivated institutional, planning and regulatory changes in the 1960s and 1970s, which was linked to the growth in state and parastatals that concentrated in the city in such decades, as well as the growth in commercial air transport. Salazar-Ferro (2007) argues that these decisions

largely responded to a top-down approach to city planning that intended to project national agendas and priorities at the municipal level. This resulted not only in initiatives generally circumscribed to specific sectors and spatialities, but also in an increase in social and spatial inequalities in the city.

Initiatives within the national and local legislation introduced new instruments for decentralisation at the municipal level. In Bogotá, agreements³⁴ produced by the city's Council granted new powers and responsibilities to local administrations (Agreement 26 of 1972, Agreement 8 of 1977). In addition, new entities were created to administer different aspects of urban development. These included the creation of local administrative boards called *Juntas Administradoras Locales –JALs-*, new local government bodies of popular election for each local government area that carried out local development works and monitoring of investments; the Urban Development Institute, a new institution responsible for public works; and a new department for administering transport in the city.

These changes were accompanied by strengthening of local utility companies, which organised their own planning offices in order to set up the sectorial plans being adopted by the city (Salazar-Ferro, 2007). According to Gilbert (1990), public infrastructure agencies in Bogotá had an outstanding performance during the 1960s and 1970s, reflected by rapid increase in capacity, improved coverage and better servicing particularly in water, sewerage, and electricity services.

Increased efficiency of public utilities companies contrasted with the poor performance of another public company, the EDTU, which at the time had been suffering from poor coverage and low service quality (Rodríguez

³⁴ *Agreements or Acuerdos are legal designations produced by local councils, which are applicable at the municipal level according to the Colombian law.*

Baquero et al., 2003). This pushed the government to implement reforms in the governance of transport in the city, seeking to strengthen its capacity to coordinate provision of infrastructure, regulate and oversee public transport services already provided mostly by the private sector. One of the most relevant milestones during this time was the creation of the Urban Development Institute –*Instituto de Desarrollo Urbano, IDU*- in 1972, which is the institution responsible for public works in the city (Botero & Suárez, 2010). With this, the city sought to increase efficiency in the management of road and public-space infrastructure by prioritising and focusing road development programmes that would improve connectivity with rapidly growing areas of the city with its centre. In 1976, aiming to exert greater control over increasing private motoring and provision of public transport, the city created the Administrative Department for Public transport and Transport –DATT- and assigned it the functions of planning, coordination, monitoring and regulation of public and private transport, as well as regulating transport-related education and driving academies (Agreement 11 of 1976).

During this time, and as explained in Chapter 2, funding from international development agencies like the World Bank and the IDB was instrumental in the development agendas of many Latin American cities. Programmes related to international financing by such agencies included zonal urban development programmes named PIDUZOB I and II (Salazar-Ferro, 2007). The first phase of these programmes, implemented during the 1970s, targeted an integral investment for the Eastern side of Bogotá that included road and pedestrian infrastructure, investment in healthcare facilities, public spaces, utilities, social housing and technical assistance. As a result of PIDUZOB I the city built the last large road corridor of the twentieth century, the *Avenida Circunvalar*. This not only opened the door for both formal and informal urbanisation of the hills in the easternmost part of the city, but also was designed almost exclusively for the use of private

vehicles, limiting connectivity by public transport (Montezuma, 2000). PIDUZoB II was an ambitious programme targeting the area of *Ciudad Bolívar*, one of the main clusters of low-income population in the city in the last three decades. This covered similar sectors to the previous phase, although it included larger investments in social housing and a set of specific actions and plans carried out by the city's Planning Department (Torres Arzayús & García Botero, 2010). With the development of PIDUZOB II, new infrastructure and facilities became available for the operation of public transport in low-income areas of the city. However, despite having all the conditions for serving an emerging demand for public transport, lack of integration between planning and transport agencies, made it impossible for the EDTU to operate in the areas developed during the PIDUZOB programmes.

The urban transport sector in Bogotá witnessed a long series of plans and projects during the 1970s and 1980s. As shown by, institutional changes brought about by the creation of the DATT, later transformed into the Public transport and Transport Secretariat –STT-, sought to reorganise a rising demand for public transport and regulation of private motoring. The city's public transport supply shifted from the public to the private sector, with the DATT playing the role of regulator rather than supplier.

The institutional arrangement adopted for provision of public transport in Bogotá after the creation of the DATT introduced a differentiation between providers: bus companies and bus operators (Ardila, 2007). The DATT planned, defined and assigned public transport routes within the perimeter of the city. The right of managing such routes was then given to private bus companies. However, within this scheme, the bus companies need not own any vehicles. Rather, they had the right to sell slots for bus owners to operate that route (Ardila, 2005). This, according to several local experts (Ardila & Rodríguez, 2000; Montezuma, 2000; Ardila, 2002; Lleras, 2005; Montezuma, 2005; Acevedo et al., 2008) resulted in a perverse system

where private actors concentrated most of the decision power and the state could not enforce the quality expected of the system. Under this arrangement, the bus companies were incentivised to sell as many slots to operators as possible in order to increase their revenue, leading to oversupply and disproportionate competition between operators.

Aware of the need for a public transport system of larger capacity than the collective transport in place at the time and with a favourable attitude from the national government, the city decided to pursue the construction of its first metro line (Guhl & Pachón, 1992). However, due to a changing political landscape at the national level, the national government decided to give priority to the metro of Medellín, the second largest city. This not only led to financing becoming unavailable for Bogotá's project in the short term. Financial and technical shortcomings of Medellín's project, led to a change in national regulations for financing of such projects that made it impossible for the Bogotá to finance a metro given financial constraints at the time (Salazar & Castañeda, 1993). Between the 1970s and early 1990s, Bogotá presented several studies for the development of a metro that did not come to reality because of different financial, political or technical decisions (see (Acero et al., 1999; Ardila, 2007). According to Gilbert (1990), one particular issue that decreased Bogotá's financial capacity for infrastructure development was the mismanagement of debt in the public sector during the 1980s and the decline in performance in public utility companies and problems with large-scale infrastructure developments by both the electricity and water sectors in the city.

In 1988, the first administration elected by popular vote in the city, mayor Andres Pastrana's government, considering restrictions for financing large infrastructure projects and the visible fall of the EDTU, a plan was designed for implementing a high-capacity busway corridor that responded to the city's need for mass public transport in lieu of a rail-based system (Ardila Gómez, 2004). This trunk-based bus project served as the core of public

transport services during the 1990s and helped consolidate intra-city travel dynamics in the city with no integration or additional provision for inter-municipal travel from and to the rest of the region around Bogotá.



Figure 5.2 Caracas busway in the 1990s

Photo: Chica (2013)

The institutional framework that accompanied and followed these initiatives served to set increasingly specific conditions for the administration of Bogotá despite maintaining some resemblance to municipal regulations defined at the national level. According to Botero and Suárez (2010), these decisions, although partly supported by the specific development needs of the capital city, kept Bogotá in a ‘regulatory and administrative limbo’ between the 1960s and late 1980s. This distance between the Capital

District and other municipalities was consolidated after the signing of the 1991 National Constitution, setting the city apart in its framework for urban management from other urban areas in the country. As argued by Acosta (2010), the early reforms and annexation of the first group of municipalities in the early 1950s gave Bogotá the advantage of unitary planning and government, which has helped foster some visible results and progressively introduced effective urban management strategies. However, the lack of integrated planning and long-term vision led to the consolidation of a fragmented approach in urban planning city that gave priority to immediate and short-term priorities without taking into consideration the larger landscape at both city and regional levels (Salazar-Ferro, 2007).

5.2.2. Planning between 1990 and 2013: urban transformations and emergence of transport (best-practices)

Bogotá entered the 1990s facing a crisis. As depicted by several authors (Gilbert & Dávila, 2002; Vargas, 2003; Gilbert, 2006), coverage in water, sewerage and electricity services had declined as a result of difficulties in providing services of adequate quality to increasingly remote areas. The city suffered frequent electricity blackouts that affected negatively quality of life and productivity. The EDTU disappeared in 1991 after all attempts for competing with private operators failed. According to Montezuma (2000), the bureaucratic management of the company, corruption and clientelism were among the root causes of the demise of the EDTU. In addition, the city was effectively bankrupt. Insecurity and crime were at their peak during the first three years of the 1990s and corruption was common in the city's administration (Gilbert, 2006).

The busway corridor developed by Mayor Andrés Pastrana started operations at the beginning of 1990 in one of the main roads of the city, the *Avenida Caracas*. The busway corridor was inaugurated with a length of 16 km per direction with exclusive bus lanes and 32 stops at a cost of 20 million

US\$ of 1990 (Montezuma, 2000). This project, central in the agenda of the Mayor, was a local adaptation of the type of bus system developed in Curitiba, Brazil. However, there were financial restrictions and high pressure for delivery within the length of the mandate at the time (two years). The Caracas busway corridor had a poor design and allowed operation of the same fleet serving the routes previously in place in the corridor. This led to oversupply in the corridor, which rapidly decreased quality of the service and deteriorated the infrastructure (Ardila Gómez, 2004). Montezuma (2000, p. 72) describes the Caracas busway as a “‘localised’ experiment, with huge holes, but undoubtedly cheap”. The design of the busway intended to respond to the need for better public transport services in the corridor with the largest demand of the city. However, its internal and fragmented vision and lack of institutional capacity for securing an adequate provision of services by private actors led to its demise.

Also in the 1990s, the DATT became a secretariat adjoined to the Mayor’s office and the only transport authority in the city. The new Public transport and Transport Secretariat –STT- had the responsibility for planning, regulating, tendering and overseeing transport development. However, the building of capacity necessary to run the new functions assigned to the Secretariat did not come along with the changes in the administration of the city (Montezuma, 2000).

In 1991, the new national Constitution brought along the most significant changes in the city’s governance. Among these were special provisions for political, financial and administrative autonomy for Bogotá aiming to close the gap between the city’s growth and its institutional development (Castro, 1991; Zubiría Samper 1994). Because of these changes, the city’s status changed from Special District (Distrito Especial) to Capital District (Distrito Capital), giving the same administrative status as the provinces. In this regard, despite being at the centre, and capital of the *Departamento* of

Cundinamarca, the Capital District is independent from the provincial government. The Constitution also designated transfers to the city from the nation's exchequer, particularly for health and education, which according to the Government of Bogotá (2014) account for 19.3% of the city's income. The Capital District is divided into 18 local government areas or *Localidades* each with its own elected government and which are subordinated to the city's administration (Klink, 2005).

As mentioned in the previous section, one of the most relevant regulatory changes in the city after the Constitution was the Organic Statute in 1993 by Mayor Jaime Castro (Dávila, 2004). The Statute allowed a major transformation of power relations between the Mayor and the City Council. According to Gilbert (2014), for years the mayors of Bogotá, both elected and designated, had to negotiate with the Council whenever they implemented new policies. This led to clientelism and corruption that involved political favours and ultimately impaired the executives to carry out policies within their government periods. The Organic Statute became an instrument for the separation between the city's administration and the regulatory and political control functions of the Council (Dávila, 2004). The Council was limited to passing laws and supervising the actions of the Mayor. It therefore conferred the latter higher autonomy and flexibility in his or her actions (Gilbert, 2014).

The development of special regulations and higher autonomy for Bogotá was followed by what Gilbert (2014, p.7) called "the miracle years". Between 1994 and 2003 the city profited from three administrations with two emblematic mayors, Antanas Mockus (1994–1996 and 2000–2003) and Enrique Peñalosa (1997-1999). Significant improvements in civic culture and citizen behaviour, financial management, infrastructure investment and social programmes characterised this period (Dávila, 2004; Montezuma, 2005; Gilbert, 2014). The city's income stream was improved and city's finances were healthy, even achieving budget surplus in several

years (Hernández-Rodríguez, 2005). In addition, there was continuity in the administrations, which allowed the city to consolidate investment programmes in transport infrastructure, social housing, public spaces and social development. Management of public companies was also improved, giving room to privatisation where needed as in the case of tax collection. The electricity company was also partly privatised and public-private partnerships were introduced in health, education and transport (Gilbert, 2014).

During the “miracle years”, the city experienced an increase in tax revenues, credit ratings for external financing and internal debt, which had a positive effect on public investment (Gilbert, 2014). The Mockus and Peñalosa’s administrations managed to increase revenues from US \$1.255 billion to US \$2.461 billion between 1997 and 2000 (Montezuma, 2005). The transport sector was both a significant contributor and a beneficiary of these changes in tax policy. New income streams derived from gasoline tax, which added to other strategies to expand the public budget as enforcing tax collection to reduce evasion, improving data for tax collection, and updating cadastral values to reflect the benefits of investment in public infrastructure (valorisation). These strategies allowed the city to raise an additional of US \$108 million, which added to US \$646 million obtained through primarily privatising the Telecommunications Company of Bogotá (Montezuma, 2005).

Before large investments in urban infrastructure took place during the Peñalosa administration, there was a need for changes in transport policy, regulation and planning. A visible reduction in corruption in transport policing during the Mockus administration was possible through the transfer of this responsibility from the Police to the STT. Between 1994 and 1997, there were education and culture campaigns promoting citizenship and appropriation, which had a positive impact on the use of public space for circulation in the city. In addition, the empowering of citizen participation led

to people not supporting restrictions to the use of private vehicles to impugn them, which prevented the city to implement such measures despite traffic congestion being the most serious concern of the majority of the population at the time (Montezuma, 2000, 2005; Ardila, 2005). In 1997, both the Japanese Agency for Technical Cooperation (JICA) and a private French-Colombian consortium delivered two separate technical transport studies. According to Montezuma (2005), these studies, particularly the JICA study, were limited in scope and reach, proposing recommendations that were mismatched to the social, urban and economic priorities of the city and the larger economic context of the country. The second study focused on the development of a rail-based system for mass public transport. Although neither study was implemented, they laid out some of the foundations for the implementation of Transmilenio BRT.

One of the most emblematic programmes during the ‘miracle years’ was Transmilenio, Colombia’s first Bus Rapid Public transport system –BRT-, implemented by Mayor Enrique Peñalosa and developed further in the administrations that followed. The city invested a large share of the additional capital raised from changes in tax policies in public space, road and public transport infrastructure, including 48% of the investment costs of implementing Transmilenio. The national government provided the remaining 52% of the systems’ investment costs. Transmilenio was one of the core projects in Mayor Peñalosa’s agenda, which had investments in public space and transport infrastructure as priority instruments for the redistribution of access and equality (Montezuma, 2005). Although these were explicit objectives for the development of the Mayor’s urban development programmes, strategies for their achievement were not always well-received by the population like installing bollards to prevent parking on pavements, a common practice favoured by the general population and businesses alike.

Most of the projects developed during the Peñalosa government were completed or at least launched during his three-year term (1998-2000). This, according to Gilbert (2006), led to the near-completion of the administration's original development plan. A remarkable exception to the implementation of such plan was the metro project, which had been sanctioned by the national government of President Ernesto Samper (1994-1998), exiting administration at the time Peñalosa was appointed. According to several authors that have followed the development of Bogotá, particularly during the "miracle years" (Ardila, 2005; Montezuma, 2005; Gilbert, 2006; Dávila, 2013), the Mayor's objective was to deliver a new public transport system by December 31st of 2000, which did not necessarily mean a rail-based project. In order to accomplish such an objective, an external team to the administration was appointed by the Mayor and resources were secured through the United Nations Development Programme (UNDP) to build an investment fund that ultimately financed Transmilenio (Montezuma, 2005).

Transmilenio is one of the most relevant elements in the transport practices and interactions of residents in Bogotá and its surrounding municipalities. As such, it is relevant for this research to understand its development and characteristics, paying particular attention to the governance of the system and its limitations in relation to coverage and jurisdiction. The structure of the system is a direct consequence of its planning and implementation process, driven mainly by concerns over priorities of institutional and urban reorganisation within the city's boundaries, without considerations for regional integration and inter-urban connectivity.

Bogotá's system in the late 1990's led to the development of Transmilenio as a mass public transport solution for a city that had been promised a metro already 4 times in its recent history, after the failure of the Caracas busway corridor (Acevedo et al., 2008). The precondition for Bogotá's development of Transmilenio was a chaotic set of public and private agents

with different interests in the business of public transport. This had led to a disorganised institutional map with lack of clarity regarding distribution of responsibilities, resources and control in the provision of public transport. The perverse system produced because of the collective transport organisation of the system before implementation of Transmilenio led to overwork of drivers, an inefficient organisational structure, excessive pollution and congestion. Toward the late 1990's Bogotá suffered from oversupply and perverse incentives that led to continuous detriment in service quality and intense competition amongst low-scale providers in what has been termed the 'war of the cent' (Ardila, 2005).

Transmilenio sought to restructure public transport, providing an alternative to the chaotic set of privately operated bus services that monopolised supply of public transport services in Bogotá. Transmilenio S.A. is the managing institution of the system. It is a publicly owned company in order to plan, coordinate, and construct the infrastructure for the operation of the services, as well as to oversee operations (Montezuma, 2000). Private firms supply the vehicles and operate them, although revenues and finances are the responsibility of the managing institution (Transmilenio, 2006). The latter are distributed as follows: 65% for the operators of the trunk lines, 20% for the operators of the feeder routes, 11% for fare collection and banking, 3% for the operating costs of Transmilenio S.A., and 1% for a capital investment fund.

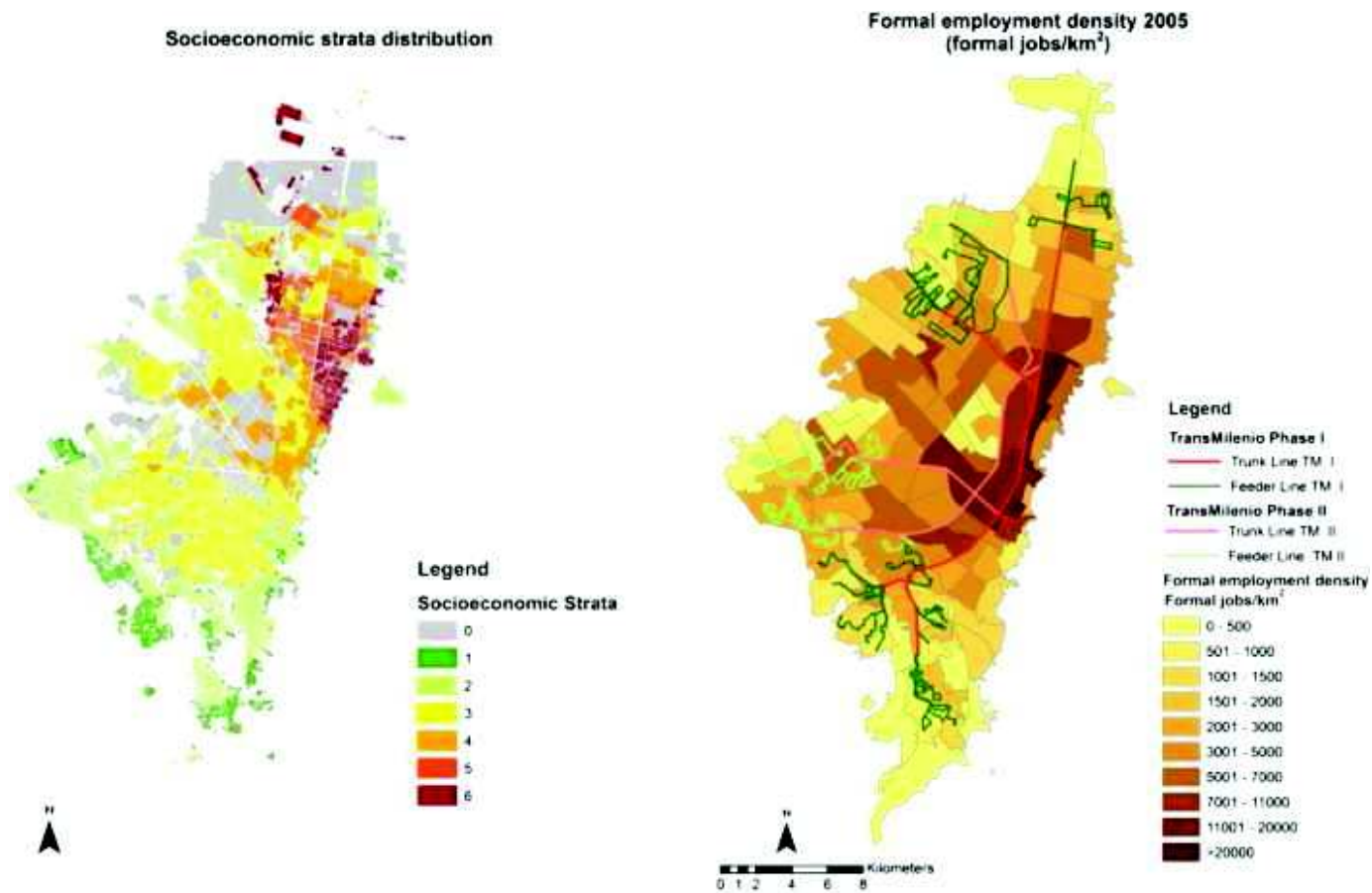


Figure 5.3 Socioeconomic structure of Bogotá and coverage of Transmilenio in 2013

Source: Bocarejo et al. (2013)

With Transmilenio, Bogotá followed the path paved by Curitiba and other Brazilian cities adopting hybrid-managed bus systems with a more active role of authorities in determining the structure of transport network, levels of service and frequencies, forcing a separation between revenue collection and operating activities (Estache & Gómez-Lobo, 2005). This, differently from the Caracas busway incorporated all of the substantial institutional and organisational considerations that made Curitiba's case a success, and supported changes tailored to the local reality of the city at the time. Not only did Transmilenio represent an unprecedented change in urban transport policy in terms of technology, infrastructure and operation. It entailed a restructuring of longstanding weaknesses in local and regional transport management institutions and the organization of private actors in the provision of public transport services.

Transmilenio is a trunk-feeder system where users pay for access to an elevated platform at the stops of the trunk services, and a feeder system carries passengers to the trunk lines at no extra cost (Transmilenio, 2006). 500 m separate bus stops in the trunk lines. This marked a substantial change in the municipality's attitude toward public transport. The passive approach outlined in section 5.2.1 between the 1970s and 1990s had allowed private operators to control the development and subsequently led to the detriment of public transport supply. Transmilenio was proposed as part of a larger Integrated Mass Transport System, which aimed at covering the entire city by 2020. Transmilenio is planned in six phases, of which three have been implemented by 2016 (Transmilenio, 2013). As shown in Figure 5.3, phases one and two of the Transmilenio Network provided coverage to the areas with higher concentration of employment in the city, while the feeder system serves some areas of concentration of low-income population. However, since the implementation of Transmilenio, by 2013 no considerations had been made for extending the system beyond the border of Bogotá.

Differently from Mayor Mockus' attitude toward restrictions on the use of the private car, Mayor Peñalosa had outlined de-incentivising car use as an explicit goal of his administration. Aside from Transmilenio, one of the longest-standing policies in Bogotá stemming from the Peñalosa administration was "Pico y Placa", a car-circulation restriction measure that limits use of private vehicles during specific periods of the day (or week) (Montezuma, 2005). This was accompanied by another considerable measure seeking to change users' attitudes toward the private vehicle, the Car Free Day, which has been held annually, and more recently twice a year, in following administrations (Cervero, 2005).

Infrastructure for non-motorised transport also improved considerably during the "Miracle Years". According to Cervero (2005), Bogotá achieved the largest cycle-path infrastructure network in the Global South with approximately 270 km completed in January 2003. Such network covered much of the city, including areas of challenging topography and difficult access. In addition, public space was recovered and expanded, providing new spaces for pedestrians and renovating existing ones. Added lighting, green spaces, sidewalks and traffic signals aimed at providing safer and more comfortable conditions for walking. Montezuma (2005) argues that the Peñalosa administration provided 585,297 square meters of public space under bridges, 432,000 square meters of sidewalks, and rehabilitated nearly 54% of the green space in the city. During Mayor Mockus' second mandate many of the investment plans of the previous administration were continued, including enforcement of some of the restrictive measures put in place before 2000. This allowed for a positive continuity of urban policies and contributed to the consolidation of transport infrastructure and public spaces (Montezuma, 2005).

Despite clear advances in the management of urban infrastructure and positive development in the governance of the city and its transport system, many of the policies regarded as best practices during the "Miracle years"

were either continued with no major changes in the most positive case or truncated in the worse amongst subsequent administrations. In the election of 2003 the electorate voted for a left-wing candidate advocating for working class interest (Gilbert, 2014). Mayor Luis E. Garzón was elected to office largely by a majority of low-income and other working-class voters that felt their interests had been under-represented during the “Miracle years”. Mayor Garzón’s objective was not to introduce populist policies, but rather to maintain those of his predecessors that had proven to be positive while introducing more poor-centred programmes (Vargas, 2006). As such, his anti-hunger programme, child education and welfare, and management of the city’s finances were well-received during and after his administration. Gilbert and Garcés (2008) argue that amongst Garzón’s shortcomings, some of the most significant were the decline in security and worsening of the quality of transport in the city. This marked the beginning of a longstanding decline in the transport system, which has been fed to today. Mayor Garzón, as well as previous administrations was more concerned with the internal priorities in his agenda than in the larger urban and development landscape of the city. By the end of the first decade of the 2000’s none of Bogotá’s governments made any substantial effort towards regional integration and inter-municipal planning.

The election that followed had even further negative effects on the city’s transport system. In 2008, Samuel Moreno won the election with support from lower-income voters. Gilbert (2014) identifies from his research on the administrations of Bogotá that this Mayor, coming from a history of service in the national Senate, was prone to political influence, corruption and clientelism. This led to a city government that although had the support of the majority of the Council, compromised a large share of its autonomy by granting political favours and appointments in the administration. In particular, laxity in the performance of officials appointed at agencies for monitoring and control led to illicit deals involving city officials and

corruption in major infrastructure and services contracts engaged between 2008 and 2011. As one of the most infrastructure-intensive sectors, transport was at the centre of corruption and illegality in the Moreno administration. Transmilenio's third phase, which was held back for most of Moreno's time in office due to his promise of building a metro for the city, was involved in one of the largest scandals of corruption because of commissions being paid to the Mayor and his brother by private contractors (Gilbert, 2014). After pressure by the press, citizens and denouncing by even some of Moreno's own party senators of what was termed the "carousel of corruption", a formal investigation led to the imprisonment of the Mayor, his brother and several of his staff accused from corruption (Semana, 2013).

In 2012, after a temporary administration was appointed by the President after Moreno's incarceration, former Senator Gustavo Petro of Progressive party was voted in new elections. The third in a series of left-wing administrations, Petro had aimed to reduce social inequalities and introduce new controls on urban expansion and sprawl. While Petro had a progressive agenda aiming to reduce costs of transport services for the poor, increase access to housing, increase taxes for higher-income sectors, and he promised to deal with gun control and drug addiction problems (Gilbert, 2014). However, his administration lacked experience, was contested from different sectors, and was even involved in residual scandals from the carousel of corruption. This administration was one of the first in addressing regional issues, proposing substantial changes in land-use regulation or the POT (Plan de Ordenamiento Territorial). However, many of the initiatives by this Mayor were truncated before coming to full fruition.

5.2.3. Implications of Bogotá's decisions for the surrounding municipalities

The history of planning and urban development in Bogotá, and the regulatory and governance dimensions underpinning it, have had a considerable influence on the growth patterns and development of its surrounding municipalities. As introduced in the previous section, during the second half of the twentieth century Bogotá faced major changes in its urban structure and governance scheme. The annexation of the six municipalities allowed local administrations to concentrate on the immediate issues inside its much expanded boundary. At the same time, decisions at the national level like the construction and expansion of a new international airport in the 1950s in order to consolidate Bogotá as a national and regional hub, as well as investments in the national road infrastructure that connected Bogotá with the main logistic and production centres in the country, largely influenced urban development in nearby municipalities.

With the issuing of Law 388 of 1997, Colombia adopted a zoning law for the organisation and management of the territory. Although different initiatives to this end had been proposed since the issuing of the Constitution in 1991, it took nearly eight years for the national law of land-use (Ley Orgánica de Ordenamiento Territorial - LOOT) to become a reality (Ministerio de Ambiente, 1998). The LOOT states that every municipality with a population over 100,000 inhabitants must issue a Land Use Plan or POT (Plan de Ordenamiento Territorial), which governs physical development through clearly established rules and regulations. POTs are formulated by technical staff in the planning department of each municipality and need to be presented as a bill to the respective municipal council for its approval and following adoption.

According to the National Planning Department (DNP, 2009) the POT is the instrument that defines the land use of the municipality, its ecological structure, areas of natural hazards and at risk, the urban perimeter and areas for future expansion, and the location of the road plan and community facilities for public spaces. In this regard, the POT is the route chart for urban development in the country and can limit articulation between adjacent municipalities in the absence of a metropolitan authority. Colombian municipalities adopted the first generation of POTs in 2000, which were later followed by adjustments and revisions that helped shape plans to their current state.

Acevedo et al. (2012), argue that Bogotá formulated its first POT with an exclusively inward look, laying out the foundations for the fragmentation experienced by the capital region in following years. This is not to dismiss the achievements of the city's POT. Given its rate of economic growth in recent years, the city required to steer its development to provide the required capacity for efficient economic production and social development of its rapidly growing population. Considerations on densities, land-use, development and recovery of public spaces and provision of low-cost housing for closing the gap between demand and supply are relevant milestones in the development of the plan. However, scarcity of land for urban expansion and lack of adequate instruments for control of land value, capture of the economic benefits of infrastructure investments, and mechanisms for redistribution has led to increased land prices even in low-income areas. This makes it increasingly difficult to locate housing for low-income families within the perimeter of Bogotá.

Given a history of larger autonomy and power for decision and investment for Bogotá, the development gap between the city and surrounding municipalities subject to larger restrictions in the financial, political and administrative levels has increased. Despite the former, the governments of Bogotá, the municipalities and Cundinamarca, with support from the

national government, have attempted in different opportunities to constitute a metropolitan authority for land use and spatial planning (Acosta, 2010). In 1994, initiatives to amend the Constitution in order to create a Special Administrative Planning Region (RAPE) for Bogotá and its surrounding municipalities faced strong political resistance, eventually leading to its dismissal. In the same year, the country adopted the Law for Metropolitan Regions, from which stem five metropolitan areas currently operating in Colombia. However, no agreement was possible for the Bogotá-savannah region, particularly because of political resistance toward the creation of a new authority. Other initiatives lobbied by the provincial government like a Regional Planning Working Group supported by technical assistance of UNCRD-LAC in 2001, promotion of Regional Development Scenarios in 2006 and Regional Initiatives Agenda in 2007 have set the basis for future initiatives. In 2009, the Governor of Cundinamarca and the Mayor of Bogotá reached an agreement to join efforts on a 23-point agenda, seeking the creation of a regional agency and the joint lobby for the RAPE proposal in Congress (Acosta, 2010).

The differences in power and wealth between municipalities plays a major role in the resistance from different actors involved in the region. On the one hand, with the definition of new powers for all municipalities by the Constitution, local decision makers and politicians enjoyed increased autonomy for decisions and investment, which can be threatened by the introduction of a new authority at the supranational level. In addition, a large share of municipal income comes from national transfers, while the supranational transfers only represent about 15%. In this regard, the provincial government has limited power to lobby for regional integration, while local governments tend to be wary of losing their power and income streams. The antecedent of the annexation of the six municipalities in the 1950s has also influenced positions of local governments toward the creation of a metropolitan area or annexing Bogotá. As former

municipalities become local jurisdictions, which depend from the municipal government for policy and investment decisions, the power and influence of local administration decreases significantly. Conversely, officials in Bogotá can be reluctant to annex certain municipalities given their high concentrations of poverty and informality, as these require large investments in infrastructure and social development programmes despite not making large contributions to the city's tax revenues.

In the area of transport, the absence of a metropolitan authority limits development of inter-municipal transport infrastructure and services. In recent years, the provincial government has advocated for the development of a suburban rail that connects the municipalities in the inner ring with the city of Bogotá. However, due to financial requirements in the participation of each municipality and the nation in the costs of the project, an agreement for design and development has not been possible (Acosta, 2010).

The decisions in Bogotá have also influenced regulation of urban public transport for surrounding municipalities and other large urban agglomerations in the country. The required regulation and policy changes for the implementation of Transmilenio influenced national urban policies (Oviedo & Joshi, 2015). This opened the door to a new regulatory framework originated in the national urban development policy, and defined based on the very principles of the political constitution of the country. This requires the national government to "... intervene to give full employment of human resources and ensure that all people, especially those of lower income, have effective access to basic goods and services ... " (Government of Colombia, 1991). The Urban Development Policy seeks optimization of cities from the notion of a densified city model that encourages the concentration of activities; reduce travel between residential areas, urban services and employment. This involves an encouragement of infrastructure development and reuse of existing structures, promoting the use of public transport and other alternative

means for travel, and reducing urban sprawl and pressure on conservation areas (Secretaría Distrital de Movilidad, 2005).

A national policy to improve public urban passenger transport services, called the *National Urban Transport Policy -NUTP-* was launched in 2002, two years after Transmilenio started operating (Consejo Nacional de Política Económica y Social, 2002). It provided policy guidelines aiming at improving urban public transport services through application of innovative financial techniques and management tools. Following Bogotá's experience, the national government aimed at strengthening decentralisation and increasing productivity of large and medium-sized cities using public transport as an instrument of urban management and development (Consejo Nacional de Política Económica y Social, 2002).

According to national policy documents (Consejo Nacional de Política Económica y Social, 2002), the objectives of the NUTP, which still governs urban transport in the country, encompass physical, economic and institutional interventions aiming to achieve sustainable and inclusive mobility. The ambitious policy framework set by the government aimed at strengthening cities institutional in the planning, management, regulation, and control processes of traffic and transport. It encourages implementation of public transport systems that could respond to travel needs of the population under criteria of operational, economic and environmental efficiency. Ambitious as it may seem, this marked the official change in paradigm from the late 1980's and early 90's car-based city to a more collective-sensitive set of policies aiming at holistic improvements in both mobility and sustainability.

However, in cases like Soacha and other largely populated municipalities due to institutional weakness, financial constraints, corruption and other structural problems, it has become difficult to comply with the minimum requirements to implement actions considered by the NUTP. In addition,

being essentially an urban policy, due to the lack of an urban metropolitan authority, or at least a legitimate functional urban area, it is not possible to integrate the municipalities in the Bogotá city-region with transport investments such as Transmilenio. The NUTP defines the institutions that manage urban public transport systems as municipal entities, and as such, these are limited to plan, implement and operate services outside their jurisdiction. This presents a great challenge for the use of transport as an instrument for regional planning and integration in the context of Bogotá and its surrounding municipalities.

The following chapter links the analyses in this chapter with governance and planning in Soacha and Cazucá. The lack of regional integration and fragmentation between Bogotá and Soacha is explored from a governance perspective, seeking institutional, administrative and political factors that may influence the way in which urban transport is planned and delivered in Soacha. Chapter 6 also explores issues of equity in governance and levels of representation in Soacha and Cazucá as issues related with both splintering urbanism and social exclusion.

6. Governance in Soacha and Cazucá: consolidating 'peripherality'

This chapter provides an analysis of the planning and governance frameworks underpinning transport planning and delivery in Soacha as part of the examination of splintering urbanism. The chapter utilises evidence from policy documents and insights from interviews with key stakeholders in and out of government in Soacha to explore institutional weaknesses that may reinforce the limitations of mainstream transport planning in the municipality under a framework of good enough governance. This chapter presents evidence of how structural requirements for adequate government are manifested in the government of Soacha and how potential weaknesses in government can devolve into invisibility and lack of representation of marginalised areas such as Cazucá, which compound the localisation of both splintering urbanism and social exclusion in the area.

The decentralisation model outlined in Chapter 5 has implications for the current organisation of the capital territory and the relations between Bogotá and its vicinity. Such relations both affect and are affected by the precarious integration of Soacha with Bogotá and the rest of its surrounding region despite clear functional interdependencies. Recent urban literature argues that Latin American cities, and in particular their metropolitan regions, show increasing socio-economic mix at the macro level while increasing segregation at the micro level, partly as a consequence of the application of mainstream urban and transport planning models such as those outlined in Chapter 2 (i.e. Dureau, Hoyos, & Flórez, n.d.; Janoschka & Borsdorf, 2004; Short & Kopp, 2005; Coy, 2006; Koch, 2015). These patterns of segregation can have potential long-term social consequences, particularly in relation to the increase in spatial inequalities within urban societies (De Duren, 2006). Many cities such as Bogotá, have not been

able to contain their growth within existing boundaries, spilling over on smaller towns and adjoined settlements, while being restricted by their own jurisdictions (Nickson, 1995; Davey, 1996; Meligrana, 2005). Thibert and Osorio (2014) argue that the socio-spatial segregation of metropolitan regions like Bogotá's is likely not only to have immediate social and economic consequences, but also long-term political repercussions. Such political consequences can be linked with shifts in population belonging both to the economic elites and the poorest residents away from the city centre to the peripheries, which can entail shifts in the distribution of power and strengthen inequalities in the distribution of public investment, infrastructure and access to urban facilities and functions.

Class and income inequalities in cities of Latin America and the Caribbean have deepened in recent decades and place cities in the region amongst the most unequal in the world, according to evidence from Habitat (2012). Low and Astle (2009, p. 47) contend that "the particular capacities and powers of organisations influence transport planning outcomes". The case of Soacha contrasts with other cases found in the Latin American scientific literature where large municipalities embedded in prominent metropolises have demonstrated high performance and efficiency in urban planning and management (e.g. Monterrey (Paiva, 2003), Buenos Aires (De Luca, Jones, & Tula, 2002), Montevideo (Canel, 2001; Chavez, 2004), and Curitiba (Schwartz, 2004)). The shift of investment and private land speculation toward selected peripheries allows both "increased suburban development by the upper and middle classes and more rapid consolidation by the peripheral poor" (Carter, 2003, p. 48). Transport infrastructure plays an essential role in supporting these trends, both by facilitating consolidation and homogenisation of middle classes in suburban communities and allowing the establishment of the poor away from the city centre (Cariola & Lacabana, 2003; Borsdorf & Hidalgo, 2010).

Differences in power and influence, incompatibility in interests from different parties, and the lack of a regulatory and governance framework at the metropolitan scale become central elements in the dynamic demographic, economic and social interactions in the Bogotá-Soacha region. However, these differences are as much a consequence of issues at the larger provincial and metropolitan levels as they have to do with institutional weaknesses and inefficiencies at the municipal and local scales. I hypothesise that such weaknesses widen physical and social gaps within Soacha and between its population and residents of other municipalities in the capital territory.

Hurtado, Hernández, and Miranda (2014) argue that the urban management model in Colombia is closely related with the administrative decentralisation processes experienced by the country since the late 1980s and a definition of institutional frameworks very much centred in the municipalities. This generates a planning system that is strongly dependent on the localisation of power and, to a large extent, on the partial privatisation of some public goods and services (Miranda, 2008). Examples of these processes are found in some transport development initiatives that have involved the cooperation between public and private actors, as well as degrees of coordination between different scales of government (Monzón, 2005). However, such examples have also involved a considerable degree of local investment, understood in economic as well as technical, political and logistical terms, highlighting the relevance of strong local institutions (Hurtado, Hernández, & Miranda, 2014).

As shown in Chapter 3, Soacha is one of 117 municipalities in the province of Cundinamarca, in turn the fourth largest province in population terms in the country and the eighth of 23 provinces in the economic competitiveness

ranking of the ECLAC³⁵ (2009). Soacha is by far the largest city in the province. However, Bogotá's presence at the centre (geographically, politically, and economically) of the region has largely influenced decision-making processes in relation to urban and regional development initiatives, investment programmes and inter-institutional coordination.

Responsibilities at the local level are supported in most spheres of public policy by the Province as an agent of the national government. In this regard, it is relevant to mention that in the National Development Plan of the national government for the period 2010-2014 ('Prosperity for Everyone', "Prosperidad para todos") (Government of Colombia, 2010), it is established as an explicit objective to reduce extreme poverty in Colombia and increase social equity, aiming to comply with the milestones set to the Millennium Development Goals -MDGs- (Government of Colombia, 2010). Such an objective, according to UNDP (2012), puts pressure on Provincial administrations to respond to the goals set for the MDGs for 2015 in their territories, which translates into higher interest and pressure in relation to local actions for accelerating development and reducing poverty. In the case of Cundinamarca, Soacha becomes central in the attainment of visible progress in regard to the challenge of reducing poverty and respond with its contribution to the national goals in relation to: reducing extreme poverty and hunger, achieve universal access to primary education, promote gender equality, reduce child mortality, improve sexual and reproductive health, reduce AIDS, malaria and other contagious diseases, and improve environmental sustainability (UNDP, 2012). In this context, from 18 goals set at the national level and 58 measurable indicators of their progress, 30 indicators are measured at the provincial

³⁵ The ECLAC's index of competitiveness is calculated using 14 variables in five areas: economic performance; science, technology and innovation; infrastructure; institutions, public administration and finance; and human capital.

level and 25 at the municipal level. Interestingly enough, none of these indicators is directly related to transport, accessibility or social inclusion, which also supports the need for the analyses that follow in the next chapter. Nevertheless, such measures of progress in urban and rural development give a perspective on the levels of inequality and poverty in Soacha, which will be explored in detail later on in this chapter in contrast with other evidence of local governance in Soacha, building a discussion on the appropriateness, effectiveness and consequences for equity in urban transport planning and development from different perspectives.

Governance, as introduced in Chapter 5, is understood as “the exercise of economic, political and administrative authority to manage a country’s affairs at all levels. It comprises mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences” (UNDP, 1997, p.90). As argued by Goodwin (2009), current research agendas of governance suggest the term refers to a set of institutions and actors in and beyond government; identifies the redefinition of boundaries and responsibilities for addressing social and economic issues; and recognises the power relations involved in collective action. These ideas are useful in framing governance in the urban context, which becomes relevant in the development of this chapter and the ultimate goal of the thesis, as they provide a solid framework to approach the dynamic relations between different actors involved in urban transport development and planning in Soacha. The idea of *urban governance*, involves notions of government responsibility and participation of civil society in urban areas (McCall & Dunn, 2012). According to the UNFPA (2007), urban governance refers to the measures and relationships between civil society and the government and its institutions, which involve the relative power applied in policy definition, decision-making, planning and implementation under appropriate conditions of participation, transparency and accountability.

Emerging literature and policy discourses add a level of complexity to the concept of governance by (sometimes loosely) defining ‘good governance’ (Williams, 2009). Although different examples in the literature may provide a different account of what good governance is (Aubut, 2004), some consensus can be identified involving core principles of legitimacy, respect, equity, competence and accountability (UNDP, 1997; van Kersbergen & van Waarden, 2001; Aubut, 2004; Kim et al., 2005; McCall & Dunn, 2012). Grindle (2004, 2007), argues that the concept of good governance can become overwhelming, particularly in the context of developing countries as it addresses a large number of issues that, although fundamental for sustained growth, are not essential for objectives such as poverty reduction, increased social equality or to steering the path of sustainable development. The same author (ibid) identifies that in cases of governments facing challenges such as acute poverty and inequality, a notion of ‘good enough governance’ which encompasses particularly the principles of capacity and competence, legitimacy, equity, and accountability, may be more grounded and useful in practice for the analysis of (urban) processes by which government is organized and delivered in cities and the relationships between state agencies and civil society.

Building on Grindle’s ideas (2004, 2007), and considering the landscape and constraints at the local, metropolitan and national level that frame governance in Soacha, I build on these principles to explore the practice of public administration, management, planning and governance in Soacha. This chapter builds on the discussion presented in Chapter 5 regarding Colombia’s governance and institutional system and the influence of the historic development of Bogotá on its surrounding region, deepening the analysis at the municipal level. Using primary and secondary information, I examine the governance of Soacha, its characteristics, challenges and opportunities, particularly in the context of measurable goals related to

development indicators in different areas of public policy, as well as the consequences of governance in Cazucá. Through the analysis of this information, I lay out evidence-based arguments for the analysis of splintering urbanism that follows in Chapter 7.

6.1 Public administration and challenges for transport planning and urban development in Soacha

Soacha follows the same organisational structure defined for the municipalities by the 1991 Political Constitution, building on a decentralisation model that grants relative autonomy to local governments to perform urban and rural planning functions. While most of the population in the municipality is urban, a large share of land is devoted to agricultural use, environmental protection and integrated management districts, which have differentiated needs. This poses a challenge for a centralised municipal administration to respond to pressing social needs emerging from large levels of informality and poverty as shown in Chapter 3, as well as to steer development, urban expansion and sustainability of its rural side. This is a critical issue, especially given the comparatively large availability of land for future expansion, both of the industrial park (identified as economic production) and urban areas, which demand strong planning institutions and control for their adequate exploitation.

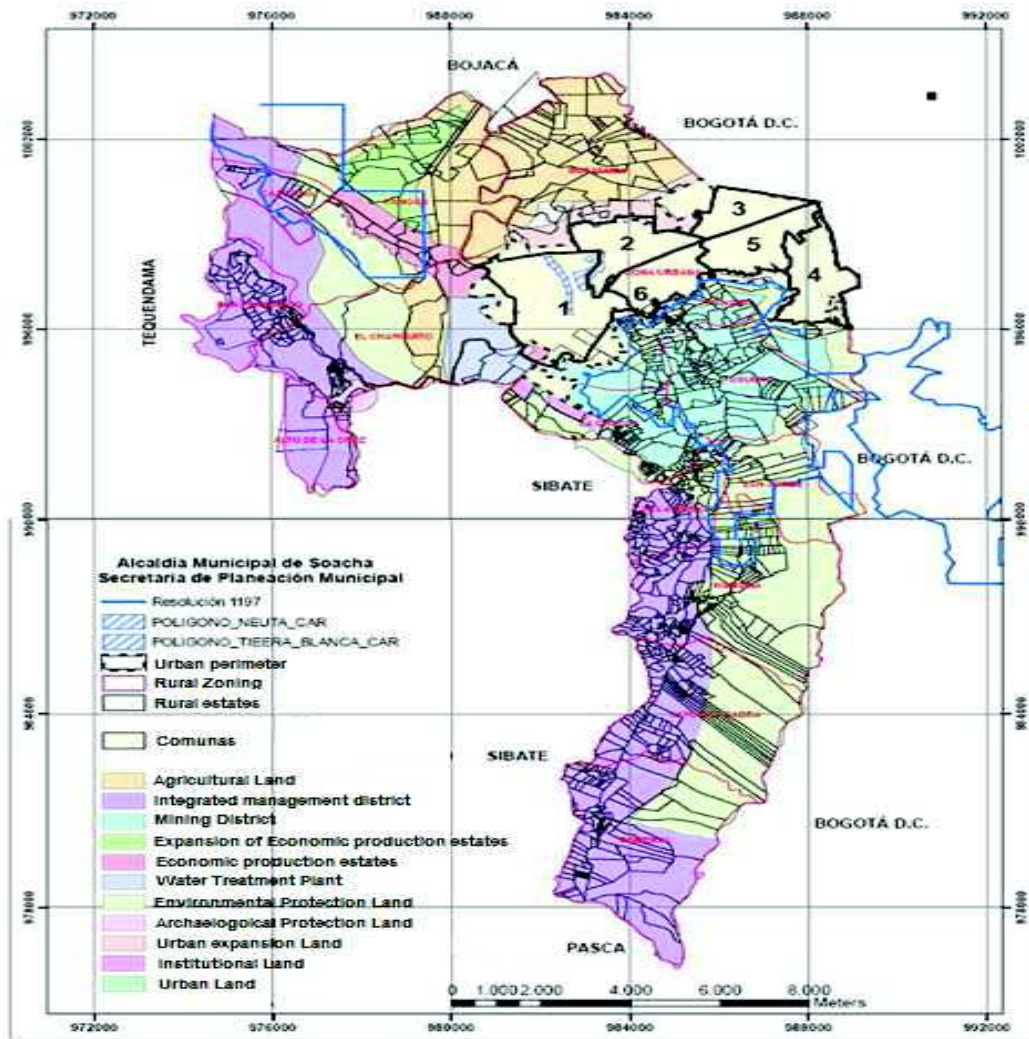


Figure 6.1. Land uses in Soacha, 2011

Source: Government of Soacha (2011)

Soacha's institutional organisation follows a hierarchical structure, similar to other municipalities in the country, with a degree of dependency by a large share of administrative departments from the mayor's office within the limits of what has been defined by the Constitution and other legislative and regulatory mechanisms (see Government of Colombia, 1994). Except for evaluation and coordination departments, all sectorial planning and administration units depend directly from the mayor's office. This top-down organisational structure distributes different aspects of local government into eight main secretariats that include: A General Secretariat, Government Secretariat, Planning and Land use, Finance, Social

Development and Community Participation, Culture and Education, Public Health, Infrastructure and Land Valorisation, and Transport Secretariat, (Figure 6.2).

Despite having an office devoted to almost every aspect of the governance of the municipality, different studies have identified problems in relation to Soacha's government's capacity (CCB, 2009; Universidad del Rosario, 2010). As argued in the previous chapter, although the decentralisation process at the national level has transferred an important part of the responsibility of providing essential services such as education, health, water and sanitation, and transport infrastructure to the municipalities, administrations with weak institutions and limited financial resources may be more open to issues like corruption and inefficiencies in production and allocation of resources (Prud'Homme, 1995). In the case of Soacha, institutional shortcomings that undermine the local government's capacity and competence are mainly related with low capacity for generating information, low skilling of human resources, and funding. In addition, legitimacy and accountability are restricted by lack of information management, limited communication between local offices, and low transparency, which in combination with issues of competence result in high inequalities in the delivery of government functions and poor relations with civil society in different parts of Soacha.

As shown in Figure 6.2, Soacha's government structure has a disaggregated subdivision intended to respond to sectorial needs as well as managing the operational aspects of public administration. A closer examination of this structure in both official planning documents and the field reveals that there may be levels of replication of activities and responsibilities that contribute to inefficiencies in urban management in Soacha. One example of such replicability are the Planning and Land-use and the Infrastructure and Land value secretariats, which despite sharing similar responsibilities in relation to physical and spatial planning, manage

independently essential inputs for social and economic development as land value surplus related to infrastructure.

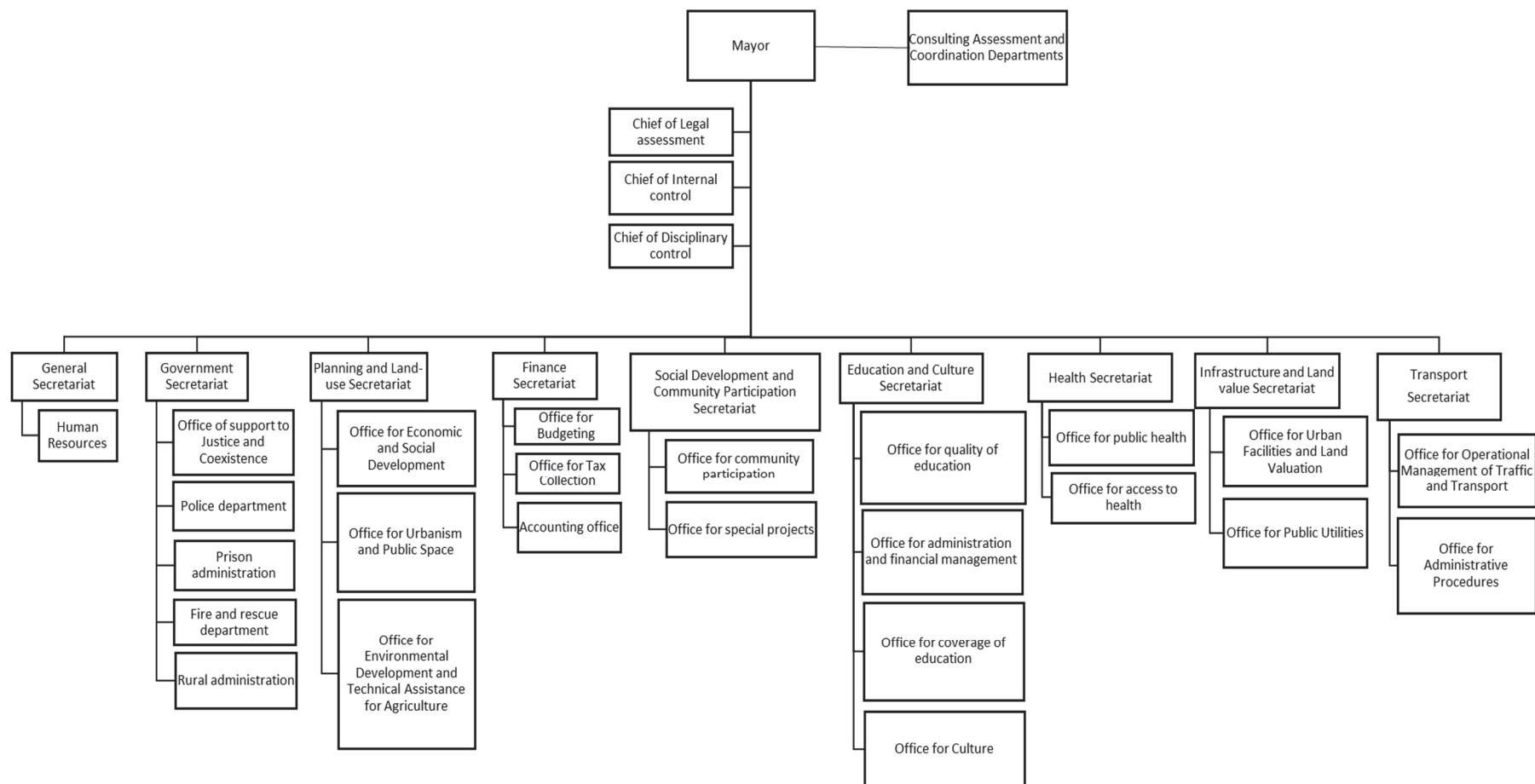


Figure 6.2 Organisational Structure of Soacha - 2013

Source: Own elaboration based on Government of Soacha (2013)

6.1.1. Staffing and institutional capacity

Patronage, understood as the allocation of jobs in the public sector as a reward to political supporters with the aims of consolidating political and personal relationships, has been identified as a dominant form of government staffing in Latin America (Grindle, 2010). It can be argued that patronage is one of many forms of clientelism, interpreted in the context of governance as “the discretionary usage of public resources, which contradicts the rule of law and the principle of bureaucratic impartiality” (Bevir, 2006, p. 96). Such a practice is widely present in all levels and scales of government and offers benefits in different spheres to those exercising them (ibid.). Political interests are amongst the most common reasons for the use of patronage in civil service, which relate to both electoral and party support-building (Oszlak, 2003). Jobs are distributed in exchange for votes or to reattribute political contributions after an election. Geddes (1994) adds that politicians also resort to patronage as a means of supporting policy reforms and to improve performance by bringing people who they can trust, consolidating agreements on new agendas, or engaging skilled and highly skilled professionals into the civil service. One of the most frequent uses of patronage is to increase personal gain (mostly wealth) through corruption (Echebarría, 2006).

In Colombia, it has been identified that patronage subsists alongside merit systems in day-to-day recruitment, selection and hiring processes in the public sector (Iacoviello, 2006). Despite visible efforts in the legislation to implement mechanisms aimed at preventing these practices (for example, a law that regulated the civil service was introduced nationwide in 2004) there are large gaps between regulation and practice. As argued by Grindle (2010, p. 3), “Implementation, not law, determines the persistence of patronage and shapes the characteristics of emergent career services”. According to Iacoviello and Zuvanic (2006), in the late-1990s only 1.08% of public sector positions in Colombia were officially available for direct

appointment³⁶. However, evidence gathered by the same authors shows that in practice one share of direct appointments could go as high as 38% of public sector staff. In Soacha, as in many other municipalities in the country, the strong level of subordination of all offices to the executive power provides a convenient environment for *de facto* appointments, which in the country are commonly made at the level of heads of division or department (Oszlak, 2003).

A detailed examination of local government practices showed that in Soacha's administration the selection of technical and administrative staff is more a political than a technical process, particularly at the heads of secretariats level. Such positions are essential to elected officials to support their policies and assert leadership (Martínez, 2005). In Colombia, these appointments are one of the primary routes to positions not subject to popular election in the government, although they can be as easily removed according to the law (see Article 5, Law 909 of 2004 of the Colombian Law (Government of Colombia, 2004)). In this regard, it could be argued that patronage is to some extent legally recognised in the Colombian legislation, although this practice is largely localised and case-specific leading to variable levels of control and contestation (see Gilbert's (2013) example of the 2008 Moreno administration of Bogotá). Hernández (2005), argues that by 2005 a large majority of employees in the civil service at the municipal level had not gone through a competitive selection process prior to their hiring.

Public administration in Soacha is arguably a reflection of such a system, where a large number of employees have either been directly appointed, have not gone through a proper selection processes, or are not considered

³⁶ All others should in theory result of competitive selection processes

‘career employees³⁷’ (i.e. temporary contractors). Quotas resulting from pressure of political and special interest groups to have representatives inside the government are the most recurrent reason for patronage in Soacha at the level of head of secretariat. However, the practice of job distribution for personal gain extends from this to lower levels of the institutions, often weakening the capacity of the local administration. This of course often implies that heads of departments do not hold the credentials required for making policy decisions, particularly in a context like Soacha where the average number of schooling years of the population is 6.8 years (UNDP, 2010). In most cases, appointed officials for positions of heads of secretariat have played relevant roles as political “brokers” in key neighbourhoods, who are then rewarded with high-level positions in the local administration. Stokes et al. (2013) argue that these “brokers” are essential in clientelist practices as they mediate the delivery of goods and favours from the politicians (or patrons) to the population in exchange for votes. An example of such practices was the appointment during the administration in place at the time of the field data collection for this research (2013) of the Secretary for Infrastructure and Land Use of Soacha, who despite having large political capital amongst industrials and upper-middle-class population in Soacha did not have any background in relation to the functions of the office. This not only limits the ability of the appointed official for policy decision-making, it also helps consolidate existing biases in the distribution of public resources in the municipality, as there are explicit interests from such bureaucrats in responding first to the interests of the groups they represent. Power and wealth are determinant in these

³⁷ Career civil service is defined by Grindle (2010, p. 4) as those non-elected government positions that are occupied “through a process of credentialing based on education, examination, or some other test of merit; in which a career ladder exists and is accessed through regularized demonstration of credentials of education, examination, tenure in office, or other form of assessing merit; in which tenure is secure barring malfeasance in office; and in which movement in and out (through retirement, for example) is regulated and compensated”

dynamics, leaving poorer and informal areas underrepresented. Not a single head of secretariat or high-level administrative role was occupied by people with ties to areas like Cazucá at the time I conducted fieldwork in the municipality, nor did in the previous administration.

Such type of patronage consolidates an institutional pyramid framed in a series of contracts between superiors and subordinates, where power is distributed downwards while loyalties flow upward and can be associated to different groups or affiliations that often involve conflicts within the institutions (Grindle, 2010). The evidence from interviews and an examination of the background of officials at higher and mid-levels of Soacha's administration show that in most cases appointed officials do not have the ideal skills for the posts they hold (out of eight secretariats only three heads have a university degree). According to the Administrative Department for the Public Function -DAFP³⁸-, civil service is structured under five categories: Directorate, Advisory, Professional, Technical, and Support (DAFP, 2012). Positions of specialised advisors, area supervisors and technical directors, which according to regulations for the municipality (see CNSC, 2015) are career positions, are also designated either by the Mayor or high-level appointed bureaucrats. This marks a clear divide between *de jure* and *de facto* practices in staffing of public institutions in Soacha, which extends further the potential negative implications for institutional capacity in the municipality.

Patronage has consequences over transparency, continuity in policies and participation, which makes it a very dangerous practice in the attainment of 'good (enough) governance'. Despite being practices within the boundaries of the law, at least at higher levels, they tend to be shielded from public scrutiny. Tools for interaction with citizens, such as the website of the local

³⁸ Departamento Administrativo de la Función Pública

government, share information selectively. According to some of the interviewees and the thorough exploration of the municipality's website³⁹ (Government of Soacha, 2014), displaying of performance indicators and CVs of heads of secretariat for public consultation are discretionary to each department. Profiles of high-level bureaucrats with limited education and work experience were not shared publicly, as well as indicators of secretariats with perceived low performance.

Laws and regulations for civil service are not sufficiently enforced in Soacha, which undermines capacity building over time as a result of frequent turnover of civil servants. As most heads of office and other management staff respond to political and personal interests and external influence, they are managed as free-appointment/free-removal positions, which results in frequent staff changes on top of potential conflicts and issues that may also influence changes in the municipality's cabinet. An example of such conflicts are frequent corruption allegations and scandals that have affected different heads of secretariats leading to removal from position whether or not there is a legal investigation (i.e. in 2012 the head of the Culture Secretariat was removed from office amidst scandals of corruption (Periodismo Público, 2012)). The frequent changes of heads of office are often accompanied by changes in the existing staff to bring along people that the incoming officials feel comfortable with, as a consequence of the leniency for appointed officials to select their offices' staffing. This of course implies a visible challenge in relation to continuity in policies, both in terms of decision-making and day-to-day management, monitoring and delivery.

Public administration and institutional capacity and competence in Soacha are continuously challenged by other structural issues such as

³⁹ <http://www.soacha-cundinamarca.gov.co/index.shtml>

understaffing in secretariats and administrative departments, as well as mismatches between the requirements of mid-level and higher positions and the credentials of the civil servants occupying them. These can be as much related to case-specific practices linked with mismanagement, patronage and corruption, as to plain financial constraints for investment in the strengthening of human resources.

Strazza (2014) highlights that expenditure in human resources for the civil service in Colombia is regulated by contrasting norms that reflect two central, although sometimes opposing, priorities in public administration: financial sustainability and institutional strengthening. Law 617/00 (Government of Colombia, 2000) defines caps for operating costs of public institutions in provinces and municipalities expressed as a fixed percentage of the institutions' current income. This law successfully reduced public expenditure during times of national economic downturn between 2002 and 2010. However, it did so at the expense of weakening public administration capacity, particularly in municipalities with limited sources of revenue such as Soacha (Strazza, 2014). In Soacha, this period was marked by a significant deterioration in the municipality's staff both quantitatively (i.e. technical and support staff in Soacha' was reduced by 30%) (CCB, 2011) and qualitatively (more junior staff was hired for mid-level positions as they entail lower expenses) (M, 32, CS, MA)⁴⁰.

In response to the decline in capacity throughout the government at national, provincial and municipal levels, the President brought forward an institutional reform in 2011 through Law 1444/11 (Government of Colombia, 2011), which put a halt on expenditure caps and provided guidelines for strengthening of human resources through additional staffing supported by

⁴⁰ Identification of the interviewee: Sex, age, type of position (CS: civil servant, PE: private employee, A: Academic, LL: Local Leader; type of institution: MA: municipal authority, PC: private company, AI: academic institution).

technical assessments and requirements defined according to local policy and strategic priorities (Rodríguez Taylor, 2012). These changes involved the development and implementation of strategic plans for human resources and yearly staffing plans (DAFP, 2012). However, the inertia in planning and management for human resources during the years that preceded the reform, and lack of sufficient enforcement of the new regulations led to the establishment of widely different practices between levels and scales of government (Whittingham Munevar, 2012). In Soacha, the staffing plan for 2012 (Government of Soacha, 2012) did not involve significant increases in the number of advisory, professional or technical positions, nor increased credential requirements for new and existing positions. Interviewees argued this was mainly explained by budgetary restrictions.

Acevedo, Velásquez, & Bocarejo (2013, p. 140) argue that although “Soacha’s population size is that of a major medium-sized city, the administration and capacity of the municipality are more akin to those of a town”. On the one hand, evidence from observation and interviews with civil servants in the five levels of public administration in Soacha (Directorate, Advisory, Professional, Technical, and Support), show that the approach to staffing in Soacha’s administration often involves low or no credential requirements. As argued earlier, most directive and advisory positions are filled by direct appointment, while in other levels where the individual has not been directly appointed from a higher level, the requirements for requesting positions tend to be minimal. On the other hand, support positions are mostly occupied by local workforce with little formal education, which involve lower fiscal strain in the operating costs of the municipality. Although Law 909/04 (Government of Colombia, 2004) establishes guidelines for meritocratic selection and competence in public staffing, as with patronage in Soacha there is a dominance of *de facto* practices. Interviewees argued that such practices are mostly aimed at keeping low

operating costs as the municipality's current revenues are relatively low for the size of its population (M, 26, CS, MA; M, 32, CS, MA). This is reflected in the organisational structure of the municipality, which features largely administrative and support staff in the organisational charts of most of the secretariats (Alcaldía de Soacha, 2013). As argued earlier, lack of sufficient human resources produces visible weaknesses at high and mid-levels of the organisation, restricting the capacity for technical assessment, management of resources and decision-making.

The employment reform requires positions in public offices to have a clear briefing on functions, profile requirements (including education, experience and skills), as well as timescale of the job whenever it is a temporary position (DAFP, 2012). Regulations provide clear definitions and boundaries in relation to temporary appointments and contractors. Law 909/04 (Government of Colombia, 2004) defines 'temporary staff' as personnel under services contracts that: (i) carries out functions not fulfilled by permanent staff as they are not frequent or considered part of the institution's regular activities, (ii) develops projects of fix duration, (iii) contributes to alleviate excessive workloads under exceptional circumstances, and (iv) develops consultancy work and institutional advisory for a period below 12 months. These regulatory frameworks are intended to reduce the number of temporary staff in public institutions in order to promote capacity building and in-house expertise. However, as identified by Strazza (2014, p.17), "the number of contractors in many public institutions can be equal or larger than permanent staff". In Soacha, this is the dominant practice.

Technical roles in the municipality are often filled by very junior professionals, contractors and sub-contractors. For instance, 64% of the staff in Soacha's Transport Secretariat are on service contracts (Alcaldia de Soacha, 2013; M, 32, CS, MA), despite some of the technical and support staff having been more than two years in the job. Trade-offs are

made within local institutions between salaries and dedication of public employees, both from the organisations and the employees themselves. This, according to an interviewee at the Transport Secretariat, leads to “more than half of the professional staff in place being contractors that work by the hour and are only in when we have a special project or a deadline⁴¹” (M, 34, CS, MA). Such an arrangement has implications on job security at all levels in the municipality and the capacity of the public sector in Soacha to attract and retain talent. On the one hand, capacity and credential mismatch may limit the satisfaction of municipal employees with their job, which in turn leads to short employment periods. On the other hand, the approach to engage better-qualified professional is to hire them as contractors, which results in rapid turnover of mid-level technical staff in the municipality. In some of the interviews it was argued that the average employment period of advisors and technical staff was between four and six months. This, in the words of a ‘career staff’ interviewee: “involves a large amount of ‘wasted time’ bringing up to speed new employees and officials, as well as can threaten information management as the exiting official may not leave clear clues on what we have and where” (M, 26, CS, MA).

The combination of patronage practices, limited investment in human resources and lack of enforcement of civil service regulations in Soacha has led to a progressive weakening in the capacity and competence of public institutions in the municipality. Such shortcomings undermine the ability of civil servants with planning and delivering responsibilities for overseeing current works and monitoring the current levels of coverage and quality of infrastructure, as well as to assess needs and priorities for public investment in the municipality. This also has implications in terms of

⁴¹ *Translated from Spanish*

communication and coordination between secretariats and departments within secretariats and decision-makers, generating fragmentation in the development of policy, use of resources and addressing acute problems such as the social and spatial inequalities identified in Chapter 3. While the analysis of staffing practices and overall public administration covered in this section is limited in both scope and depth, it contributes to placing the outcomes of transport planning and urban development in Soacha in the local context and drawing connections between splintering urbanism and social exclusion related to transport. The limited human resources capacity for planning and delivery, as well as lack of coordination and communication between different areas of municipal government, which are discussed in the following section, contribute to weak governance that I associate with a fragmented transport system in Soacha and Cazucá. Additional issues related to the relevant issues of public administration for the functioning of the government in Soacha, particularly in relation to the transport system and its governance are outlined below.

6.1.2. Communication and institutional coordination

Van Lindert and Verkoren (2004) identify that the inability to raise sustainable revenues in smaller municipalities and the high dependence on national transfers for covering the expenses related to the normal functioning of government institutions and the provision of services to citizens limit the ability of the majority of second and third tier municipalities to replicate successes of larger metropolises in the region. The limited availability of competent core staff in local administrations, like the one described for Soacha in the previous section, influences functions such as management of administrative information systems, analysis of local development opportunities and planning, overseeing and coordinating projects and provision of urban infrastructure and services (van Lindert, 2005).

Decision making environments in the context of administrative and political decentralisation entail increased complexity, which contests the ability of multi-level organisational and institutional arrangements for government to attain truly effective urban management models (Fuller et al., 2004). Arguably, more complex organisational arrangements depend heavily on the alignment of several common agendas for decision making and bring forward changes in policy (Stoker & Mossberger, 1994). The distribution of responsibilities at the government of Soacha in nine Secretariats decentralises responsibilities in search for better management of each sector of urban and rural development. Soacha's Municipal Development Plan for 2011-2015 (Government of Soacha, 2011) defines specific objectives for each sector following a similar structure to the organisational model in Figure 6.2. However, a large share of goals related to social programmes, reduction of poverty, improvements in infrastructure and urban management, increase in economic competitiveness, and social inclusion of in-migrant and vulnerable populations, among others, are clearly cross-sectorial issues that require high levels of collaboration and coordination between secretariats (Government of Soacha, 2011). As suggested by Richards et al. (1999), this implies that most challenges for policy will take place in the interface between public institutions rather than within their boundaries. In the particular case of transport policy, Marsden and May (2006) argue that institutional barriers can become more severe for goals such as expanding and developing infrastructure, reallocating road space and, in particular, behaviour change and pricing measures.

Amongst the gains in terms of efficiency and accountability attributed to decentralisation reforms are the internalisation of spill over effects (Mueller, 1996), reduction of information asymmetry and improvement in accountability as a result of higher proximity between stakeholders and decision-makers (Crémer, Estache, & Seabright, 1996; Raff & Wilson, 1997; Bucovetsky, Marchand, & Pestieau, 1998). However, more often

than not, failures or at least mixed results in attaining these benefits are suggested by the literature, partly because decentralisation is less effective in local areas further away, either in terms of distance, wealth or influence, from the central government, creating a fragmented delivery of decentralisation effects (Asthana, 2003; Akin, Hutchinson, & Strumpf, 2005). In line with this, institutional coordination becomes one of the most relevant challenges for a local administration considerably constrained in relation to its human, financial and material resources for governments such as Soacha's.

Interrelations and policy networks emerging between government bureaucracy, special interest groups and civil society are central to securing fostering of good governance (Peters, 1998). However, in the case of Soacha, appointed officials at the level of sectorial management tend to prioritise either the sole interests of the groups they represent or short-term policy priorities defined by the Mayor, which limits the scope of their action and available room for integrated planning across sectors. The interrelations and networks suggested by Peters (1998) are thus very fragmented and therefore do not allow for the interaction between policy objectives that could open spaces for improved governance. In many cases, the work of secretariats, particularly those related with planning and social development, is largely circumscribed to day-to-day needs as the municipality has severe insufficiencies in terms of available information for long-term planning. In addition, financial resources dedicated to collection and production of data have not been a priority in the budgets of previous administrations (Government of Soacha, 2008, 2011).

Rakodi (2003, p. 530) argues that "the role of government bureaucracies is to provide decision makers with sufficient information to enable them to make informed choices, while ensuring that the rule of law and government procedures designed to ensure fiscal balance, accountability and efficient performance are adhered to". In this context, asymmetries of information

and insufficiency of resources for its appropriate management can become a substantial obstacle for governance, impairing capacity, legitimacy and accountability of local governments. In Soacha, lack of sufficient information for planning restricts coordination between secretariats, and different levels of government, including relations with the national and provincial government for large-scale projects. In many cases, such as reflected by the sources of secondary evidence for this research, most information is produced by institutions external to the local government, such as the Chamber of Commerce of Bogotá, UNDP, UNHCR, various NGO's and authorities at the national level. Bogotá's institutions become essential in this regard. As shown by the interviews, from information on Origin-Destination surveys, to economic and land-use forecasts, Bogotá's instruments for planning and gathering data are often used by Soacha in its own planning processes, which consolidates the dependency on the capital city and existing trends of development.

Data dependency is a two-way issue that can deepen fragmentation between offices in the local government. On the one hand, some departments such as the Social Development and Education secretariats are mostly responsible for delivering national social programmes in the face of lack of a complementary local social agenda, which makes them direct dependents on national databases like Sisbén⁴² and statistics collected by the National Ministry of Education and the National Statistics Department. This contributes more to external coordination than collaboration with other local departments. On the other hand, this increases the information gap between offices responsible for different sectors, limiting further resources for inter-sectorial planning.

⁴² *Sisbén is the database of beneficiaries of social programmes in Colombia. It is collected by the National Planning Department with support of the National Statistics Department in all municipalities.*

Odendaal (2003) argues that information management, particularly in an era of widespread availability of information and communication technology holds a close relationship with governance beyond issues of competence and capacity. Lack of capacity for generating reliable information to support planning decisions and coordination in Soacha, also impairs the flow of information toward the general population, eroding transparency and legitimacy. Interviews with civil servants in the secretariats of Transport, Planning and Land Use, and Infrastructure and Land Valuation (M, 26, CS, MA; M, 32, CS, MA; F, 28; CS, MA; M; 33, PC, MA) evidenced issues with communication between offices dealing with inter-related dimensions of urban transport in the municipality. Lack of appropriate platforms for collaborative production of information, pressure for delivery from the Mayor's office, and limited resources for raising planning data have repercussion such as overlap of activities, monopolies of information, uncoordinated actions and lower efficiency in cost management. For instance, local road network investments are planned and executed by the Infrastructure Secretariat based on information from the municipality's Transport Masterplan and information of the Transport Secretariat under budget allocation parameters from the Finance Secretariat. However, interviewees argued that the interaction between these offices does not go beyond sporadic meetings in the context of reporting to the executive or consultations with monitoring and planning consulting agents, without coordination of actions throughout the interventions. In addition, much like the selective display of information on staffing and performance indicators in the municipality's website and other public access platforms highlighted in the previous sub-section, Soacha does not count on an information sharing system that allows access to public data by the general population. According to interviewees, not only is information scarce, but it is often "systematically buried in the municipality's digital and physical archives where access from civil society is at best restricted" (F, 28; CS, MA).

Information gaps also have consequences in relation to equity. As argued by Carter (1997), differences between information ‘haves’ and ‘have-nots’ may be deepened by reduced access to information technologies, limited capacity for producing useful information, scarce funding and insufficient mechanisms for managing data. Such differences are reflected both inside and out of government institutions, as different offices may have better access to information than others, be better informed about some areas of the municipality than others, or simply, have better grounds to allocate expenditures in specific projects or areas with sufficient information. In Soacha, according to interviews and direct observation, the availability of adequate information technologies is limited across offices in the local government. Obsolete equipment, outdated information and a fragmented archive where only a share of the data the municipality has generated in previous administrations is stored are some of the most common concerns in Soacha’s municipal government. Examples of this in the case of road investment are lack of: traffic management plans, outdated road inventories and monitoring of traffic volumes, land values and use before and after public investments. In addition, there is little share of information and coordination with other public authorities like the Traffic Police⁴³, which limits the development of initiatives like parking controls and other mechanisms to increase revenues for the transport and infrastructure sectors.

As shown in Chapter 3, Soacha’s main road corridor and its most relevant connection with Bogotá is a national road, which has different implications for road traffic management, adjacent public space, land use and value than municipal infrastructure. However, coordination with the national government and the contractor hired for the road works was limited to the

⁴³ Which operates independently from the municipal government.

extent that the municipality could not coordinate to provide sufficient pavements, access roads or supporting infrastructure (M; 33, PC, MA). In addition, no land-use planning considerations were made inside the municipality, which led to private sector investment to develop land with better access without any strategy for capturing and redistributing land value for the benefit of the municipality. Differences in access to information, availability of planning instruments and financial resources also influence differences in power at all levels. In this regard, the extension of Bogotá's BRT, Transmilenio, to Soacha is a reflection of such lack of coordination between different levels of government and the differences in power that be directly or indirectly produced by it. The availability of resources, capacity and institutional willingness to produce, manage and share quality information are essential assets in governance. As argued by Odendaal (2003), many governance processes require data management, processing of information and above all (efficient) communication and coordination. In Soacha, these are areas of clear weakness that have contributed to raising inefficiencies and inequalities in the delivery of government functions.

6.1.3. Financial management, transparency and legitimacy

One of the major concerns stemming from decentralisation in poorly endowed cities is that they do not have access to the same opportunities as larger metropolises in relation to access to debt financing to increase investment. As argued by van Lindert (2005), up to 70-80% of local budgets is spent on personnel costs, which limits available resources for carrying out tasks transferred from the central to the local level effectively. The inability of municipalities like Soacha to generate funds is not only related with capacity and competence for governance but also is strongly tied with issues of legitimacy. Not only is Soacha unable to increase local taxes or raise its current level of collection (CCB, 2009), other sources such as

national and foreign investment are not available as it suffers from a mostly negative image as a destination for low-income in-migrants and focus of poverty in the region (ibid.). Only certain industries locate in the municipality as evidenced in Chapter 3, which limits large sources of revenue from local taxation. In addition, as suggested by Meyers and Dietz (2005), the perception of the municipal apparatus as not fair and accountable, impairs the ability of local governments such as Soacha to increase its reputation for collecting taxes honestly and transparently, and to use appropriately tax revenues, which decreases willingness to pay in some sectors of society. In 2009, the government of Soacha used 59% of its current revenue to cover current expenditures for its normal functioning. However, only 20% of such income was raised locally (DNP, 2010). The limitations of the municipality to increase local revenues and manage funding for other than its regular operation limits the autonomy of the local government and its ability to develop and implement its own social and economic development policies.

Staffing and communication challenges for improving governance in Soacha have direct implications in relation to financial management and transparency as introduced earlier. Availability of financial resources for investment, effectiveness in collection of taxes and other forms of revenues, budgeting and planning, and management of finances are some of the most challenging issues for the local administration. The structuring of planning and development activities under a sectorial approach leads to the distribution of Soacha's finances in a similar fashion (Government of Soacha, 2008). This depends directly on the priorities set in the Municipal Development Plan by the current government, which governs the distribution of funds for different secretariats and financial planning. This is managed by the Finance Secretariat, which is also responsible for tax collection and accounting, adding an additional layer of complexity to the barriers for inter-office coordination mentioned in the previous section.

The involvement of contractors and lack of staff with long-term bureaucratic career in many secretariats makes it difficult to monitor investment and exercise adequate control of investments, opening spaces for corruption and mismanagement of funds in the different secretariats. As argued by Kenny (2007), weak governance has serious impacts on sectorial performance from budgeting and planning to regulation and overseeing from the central level, influencing levels of corruption, particularly in transport construction. Under Kenny's (postulates) weaknesses such as limited focus on development and transparency reforms in Soacha, as well as limited merit-based selection and pay are likely to foster corruption. Although no specific evidence was collected in this regard as this is beyond the aims of this research, the literature suggests the identified shortcomings in governance in Soacha are likely to generate corruption, in particular in a sector heavy in capital investment such as transport.

In addition, municipal organisational structure attaches some level of dependency from the Mayor's office to some agencies for monitoring and control, which constrains their ability to assess independently the effectiveness in the use of available resources. From the perspective of a high-level official in the Finance Secretariat: "there is a generalised absence of tools for financial planning and control, despite efforts in the current administration to improve coordination with other departments" (F, 41, CS, MA).

Lack of tools for financial control can be linked with infrastructure development, especially in transport. According to Law 388 of 1997 (Government of Colombia, 1997), the betterment tax is a primary mechanism for capturing value surplus produced by infrastructure investments. In the case of Soacha, this instrument is only applied in about 15% of the land in the municipality given restrictions for collection, informality, and limited payment capacity of the population. This, according

to interviewees (F, 41, CS, MA; MA; F, 28; CS, MA; M; 33, PC, MA) is a two-way issue that limits improvement of transport infrastructure: on the one hand, valorisation surplus must be reinvested in proximity to where the income was generated, creating large inequalities between sectors of the city, while areas with less value enter a cycle of continuous underinvestment; on the other hand, transport has become a strong driver of land speculation generating an increase in land transactions in areas expected to have better transport connectivity, leading to lower-income households to sell their land and move to cheaper areas of the municipality and the private sector to capture most of the little redistributive investment that the city can make. This reflects equity impacts of governance conditions in Soacha. There is a visible inertia in relation to finance part of the infrastructure through these instruments, which deepens socio-spatial inequalities in access to good quality infrastructure throughout Soacha.

These conditions are also visible from the perspective of other levels of local and regional government. According to officials at the Planning Secretariat of Bogotá (2013), one of the main problems of Soacha is its inability to collect taxes and its constant decrease in current revenues. This influences power relations between levels of government and it may impair initiatives of regional projects due to lack of capacity from Soacha to cover its share of the costs. Such is the case of the regional railway project 'Tren de Cercanías⁴⁴' and the planning process of the extension of Transmilenio to Soacha, where despite high interest from the municipality in the decision-making processes related to the projects, the influence of Soacha was most limited in comparison to Bogotá and Cundinamarca (Acevedo, Velásquez, & Bocarejo, 2013; Botero & Suárez, 2010).

⁴⁴ The "Tren de cercanías" project seeks to connect the municipalities in rings 1 and 2 of the Bogotá metropolitan area shown in figure 3.2. The first phase of the project is at the stage of public tendering with implementation planned in late 2017 (Government of Cundinamarca, 2015).

Legitimacy of the municipal government is undermined by its limited competence and capacity, as well as a visibly low accountability. Building on Grindle's principles (2007), Soacha falls short in many aspects of 'good (enough) governance'. These structural weaknesses are in turn related with the principle of equity, which refers not only to the fair distribution of government functions between different social, economic and political groups within its jurisdiction, but also involve the use of government resources to steer development towards addressing the primary needs of the population (Grindle, 2004). The following sections deepen on the issues of government equity, first by showcasing evidence of different aspects of development in Soacha and then issues of governance in Cazucá.

6.2 Soacha: (In)equity in governance

Shortcomings in governance have an impact on equity or the lack thereof, which can be measured in different manners. As argued at the beginning of this chapter, Soacha is central to compliance with the benchmarks set by the national government in relation to the MDGs in the province of Cundinamarca. This provides a good basis for the analysis of inequities in the delivery of different government functions, for which I collected some evidence related to several such goals, building on the work of UNDP (2012).

One of the primary challenges for the national provincial and local governments in relation to the MDGs is to eradicate extreme poverty and hunger. According to UNDP (2012), although poverty levels have fallen in the municipality in recent years, the rate of poverty reduction is not enough to reach the benchmark set by the national government for 2015 (8.8% of people in extreme poverty and 28.5% in extreme poverty). The Oxford Multidimensional Poverty Index (MPI) is measured in Colombia as a proxy for determining poverty levels beyond the economic thresholds of 1 US\$ per day (DNP, 2011). The MPI considers variables like education levels,

access to child education and wellbeing, unemployment and informality, access to health services, access to water and sanitation, as well as housing conditions (ibid). The MPI measures 15 basic needs, from which a person that is deprived from 1/3 (5 needs) is considered to be in poverty. The calculation of this indicator for the population in Soacha, using information from the latest population census (DANE, 2005), shows that 36% of the population in the municipality is in multidimensional poverty. This is higher than the rest of the country, which stands at 31% of the population in poverty (DNP, 2010). The high and persistent levels of poverty can be linked with the limited ability of the municipal government to implement social development programmes and reach socially vulnerable populations, particularly in informal areas such as Cazucá.

Conditions of poverty are compounded by limited food security in the municipality. According to data from the National Institute of Household Wellbeing (ICBF, 2007), 13% of the population in Soacha suffer from chronic malnutrition. Although this is a similar figure to the national average, it is still striking as over 60,000 people in the municipality are suffering from chronic malnutrition. Lack of coordination and investment in increasing food security, related with the capacity and competence of governance in the municipality, are some of the main reasons for this (UNDP, 2012). Despite having a very large population and supply of land for agriculture (see figure 6.1), the government in Soacha has been unable to boost local food production and distribution, maintaining high dependency from the major distributors in Bogotá. Although the local government has made efforts in increasing food security at least for some of the most vulnerable population, current statistics show that such programmes only benefitted over 29,000 people (Government of Soacha, 2011), less than half the figure in chronic malnutrition from 2007.

It was argued earlier for a limited local supply of highly skilled workforce for the civil service. This not only impairs governance capacity, it also restricts

considerably the population's ability to increase their human capital and raise competitiveness. It is arguably also a consequence of an unequal delivery of governance functions in the education sector. According to information from the National Ministry of Education (MEN, 2011), although a 100% access to primary education has been attained in Soacha, the same is not true for higher levels of education. Statistics show that by 2011, the rate of coverage of middle and high education is 64%. In addition, the average number of schooling years in the municipality is only 8 years (ibid). In addition, according to figures from Soacha's Education and Culture Secretariat, the gap between the estimate population aged between 5 and 16 and the number of school registration for basic and middle education was of 15% in 2011.

Indicators in other sectors from urban development such as health and infrastructure support the claim that lack of good (enough) governance in Soacha deepens gaps and vulnerabilities amongst social groups. For instance, death rates of children aged less than 5 and 1 are 14/1,000 and 20/1,000 respectively (DANE, 2009), 20% higher than the national benchmark. In addition, mandatory vaccination rates for children aged under 1 year have decreased since 2005, reaching 64.5% of the total in 2009, which contrasts with the average of Cundinamarca of 74.8% in the same year. Findings from UNDP (2012) suggest that this may be attributed to cuts in funding for vaccination programmes and reduction of coverage, particularly in areas of difficult access and informal settlements.

In relation to urban development, some figures related to environmental risk management and infrastructure development evidence deep inequalities in Soacha. Although this is also reflected in transport development, this particular sector will be examined in greater detail in the following chapter. As argued earlier, one of the clearest indicators of the consequences of governance shortcomings in Soacha are the large levels of informal urbanisation (out of 368 neighbourhoods in the municipality, 152 have an

informal origin) (UNDP, 2012). According to the National Agency for Disaster Risk Reduction (2010), the rain season affected 5.554 people in 1.314 households, leaving most of them with totally or partially damaged houses as a result of flooding and landslides. In addition, as argued in Chapter 3, there are high housing deficits and despite advances, there is still a 7% of the population that has no access to sewerage and 4.4% has no access to clean water (Sisbén, 2011).

These figures add to the evidence presented in Chapter 3, showing a complex set of challenges that the local government must address in the short and medium term with the aims of increasing urban development and social equity. Such indicators also reflect a clear imbalance in the delivery of several government functions, which can be related to the characteristics of governance in the municipality outlined throughout this chapter.

6.3 Cazucá: Representation and local (in)visibility

Up to this point this chapter has concentrated on issues of governance at the municipal level. This contributes to the contextualisation of social, physical and economic issues showcased for both Soacha and Cazucá in Chapter 3 and further developed in Chapter 7 alongside the analysis of splintering planning. However, additional evidence from Cazucá in the Soacha-Cazucá relation can contribute to deepen the understanding of the relevance of governance in transport-related social exclusion. In a context such as Soacha, benefits of decentralisation can be eroded by limited participation and representation, particularly in the presence of high levels of informality and segregation that can lead to the disenfranchisement of specific social groups (Faguet, 2013). Participation in these settings, especially in the case of infrastructure, is often reduced to explaining projects to stakeholders rather than involving them in decision-making processes (Woods, 2000).

Latin American local governments face challenges in opening up spaces for participation in decision-making to their constituencies (Bontenbal & van Lindert, 2008). This involves restructuring of the relationships between government and citizens, incorporating both formal and informal institutions and processes throughout policy development processes (Mitlin, 2004). The notions of good (enough) governance require high levels of participation for their implementation. Competence, legitimacy and accountability can be strengthened by institutionalised processes that allow participation of stakeholders in activities such as assessment of needs, decision-making, definition of agendas, overseeing and monitoring (Osmani, 2000; Gaventa, 2001; Mitlin, 2004). While participatory governance is necessary for good governance, it is not sufficient on its own. Civil society ought to be contributing to transparency, accountability and equity, leading to what Shah and Shah (2005) have identified as citizen-centred governance. This, however, seems a distant goal for Soacha, where citizen participation and bottom-up initiatives have been left in the hands of private and non-governmental organisations and the citizens themselves with little or no involvement of the local government.

The administrative division of the municipality adds to the geographies that frame planning and investment on public services and infrastructure. The municipality is divided in six Comunas or administrative units that encompass 348 neighbourhoods (see figure 6.3). Of these, 82 neighbourhoods are either informal or in the process of becoming formalised (about 23.5% of the municipality) (Government of Soacha, 2011).

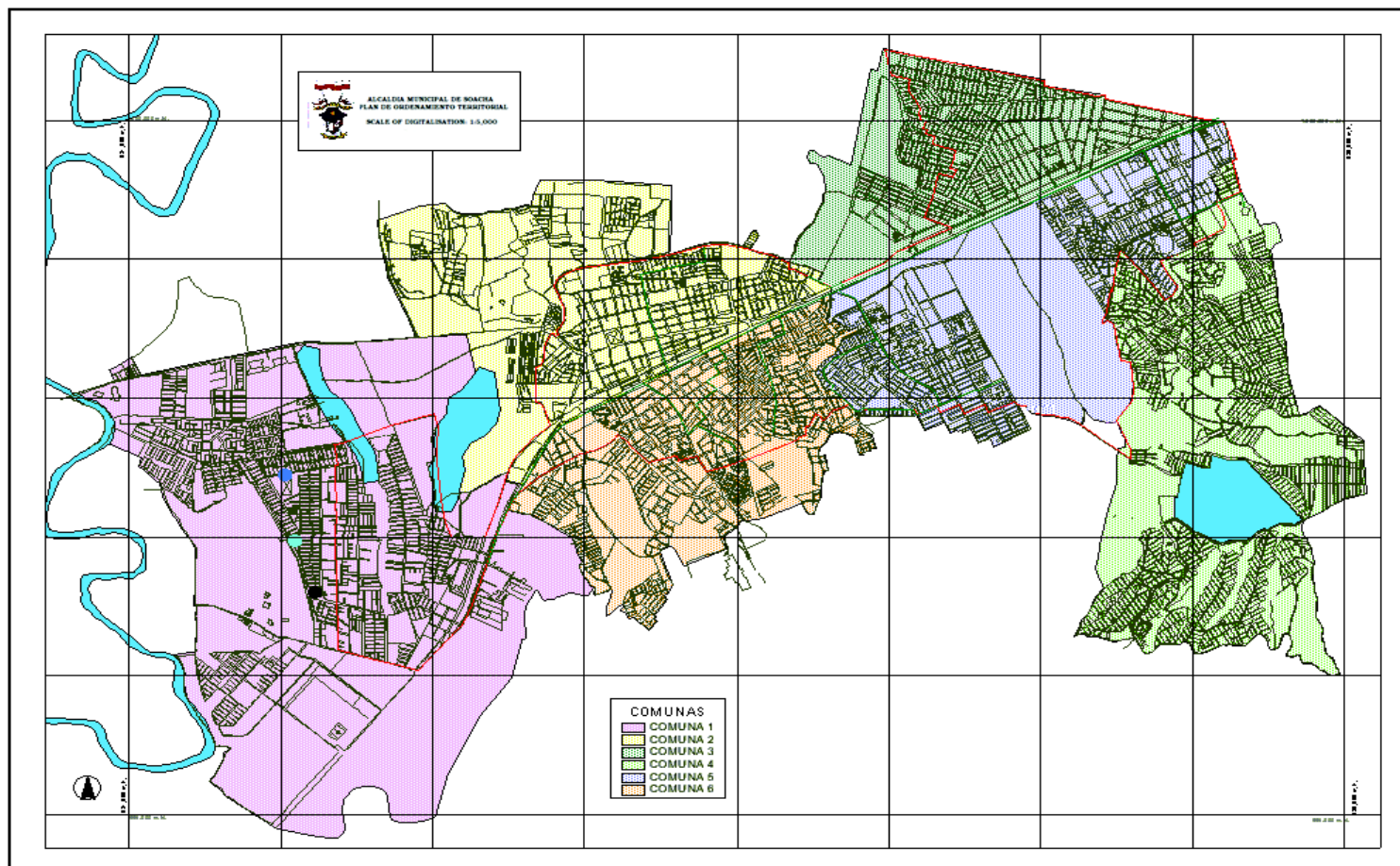


Figure 6.3 Administrative division of Soacha

Source: Government of Soacha (2000)

Evidence collected from interviews with residents and local leaders in Cazucá suggest limited levels of participation and representation in Soacha. Although it represents nearly 17% of the population in the municipality, Cazucá only holds one seat at the Municipal Council. In addition, there is a perceived low local institutional presence in Cazucá. The largest presence from the local administration is represented in the local administrative boards (JAL), which are elected by popular vote in each of the municipality's Comunas according to the Political Constitution (Government of Colombia, 1991). In the fourth Comuna (Cazucá), the JAL is comprised of seven representatives, out of which only three have a history of local leadership and have served as informal representatives of their neighbourhoods at the local government (Clarín de Colombia, 2011).

The relationship between local government institutions and the population in Cazucá has been mediated mostly through these informal institutions. Local leaders have the highest legitimacy and confidence in their neighbourhood, regardless of whether they are or not considered part of the government apparatus. This, in the eyes of even those local leaders who are formal representatives at the JAL (M, 64, LL; M, 46, LL; F, 58, LL), is necessary as there is a very low level of participation and the official mechanisms of representation are insufficient for the scale of the Comuna. The current number of representatives is insufficient to address the needs of residents in the 32 neighbourhoods in Cazucá.

In addition, such as in the case of production of information in the municipality, most of the responsibilities of development have been transferred to external bodies, which in this case include international aid agencies, NGOs and few local community organisations. The United Nations Refugee Agency (UNHCR), plays a relevant role in supporting immigrants and internally displaced population that settle in Cazucá adapting to their new environment. Local projects for development in relation to housing, access to water, construction of public spaces and spaces for

education and religious practices are majorly supported and executed by NGOs such as *Un techo para mi país*, *Tiempo de Juego*, *Pies Descalzos*, among others, and various branches of the Christian church. This leads to such institutions having higher recognition by the local population and legitimacy than the local government itself.

The systematic absence of the local government in Cazucá, at least in the eyes of the general population, creates in citizens a sense of under-recognition and invisibility in the area. This is compounded by the low presence of authorities for law enforcement. Access to Police forces in Cazucá is precarious at best. There is no local Police station or Police posts and the only neighbourhood that perceives a presence of security forces attributes it to the existence of a military outpost tasked to guard the mountains beyond the jurisdiction of the municipality. In this regard, as argued by a majority of interviewees, the neighbourhoods are controlled by armed illegal groups⁴⁵, criminal bands⁴⁶ and gangs. According to the local leaders interviewed, this leads to people feeling “left on its own at the mercy of these organisations” (M, 64, LL) and has implications in relation to the social stigmas that people of the community endure, as well as a generalised sense of exclusion and abandonment by the government authorities (Alvarez & Bocarejo, 2014). The direct implications for social exclusion related to transport of these issues are explored in greater detail in Chapter 8.

⁴⁵ Paramilitary and Guerrilla groups (such as FARC and ELN) have been reported to carry out their urban operations in Cazucá and part of Ciudad Bolívar in Bogotá (El Espectador, 2013)

⁴⁶ Around 30 criminal bands dedicated to kidnapping, extortion and micro-traffic of drugs have been identified in the area (Noticias RCN, 2014)

This Chapter provides additional empirical elements for the understanding of governance structures underpinning the delivery and planning of transport services. These are relevant for this research as in the framework defined for splintering urbanism not only traditional transport planning approaches influence the differentiated delivery of networks of connectivity. The decentralisation of the state, and implicitly its capacity to carry out planning and delivery of infrastructure, can have a reinforcing effect on splintering urbanism. This chapter summarises evidence from interviews and document analysis relevant to the governance in Soacha and Cazucá. It contributes to knowledge related to transport planning insofar as it considers a dimension often neglected by contemporary research on transport planning and its social consequences. According to the various evidence shown in this chapter, weak governance in Soacha contributes to the marked social, spatial and economic disparities in the municipality. Cazucá is by far where all the limitations and inefficiencies in governance in Soacha trickle down for the worse. The principles of the narrowed definition of good governance proposed by Grindle (2004, 2007) are useful in identifying specific areas where practices of public administration and governance have been limited in their scope and influence in Soacha and some of the consequences for a community such as Cazucá. These analyses frame the issues of fragmented planning and governance in the local context, allowing a clearer exploration of my hypothesis of the existence of splintering urbanism in the development of urban transport in the municipality. These arguments will be explored in detail in Chapter 7 alongside additional evidence from the transport sector.

7. Transport, splintering urbanism and the peripheral poor in Soacha

This chapter links the analysis of the governance frameworks in Bogotá and Soacha and the characteristics of the local context outlined in Chapters 3, 5 and 6, with the framework for splintering urbanism (Graham & Marvin, 2001) introduced in section 2.5. Several elements of Graham and Marvin's interpretation of infrastructure provision including decentralisation, traditional transport planning, concentration of power and wealth and localised attractiveness that lead to bypassing strategies are applied to the provision transport networks and associated social exclusion.

The chapter uses secondary evidence to study the historical evolution of vulnerable populations in peripheral informal settlements in Cazucá parallel with the development of transport networks between 2000-2013. The discussion and analysis of splintering urbanism is supported by evidence collected from planning documents in Soacha, existing maps and geographic information, and databases for characterisation of travel. The depth of the analysis presented in this chapter is restricted by limited availability of information and technical and institutional weaknesses in Soacha, which made it very difficult to access to the data behind some of the studies cited in this part of the research.

This analysis seeks to reflect on marked centre-periphery differences, common in the Latin American context, that are related with the concentration of power and wealth and imbalances in attractiveness. This is complemented with the study of informal housing development in Soacha and the Bogotá region, providing geographical evidence of de informalisation of Bogotá's hinterland. Furthermore, due to the considerations of power and influence in the framework, this chapter picks up some of the empirical evidence from section 6.3, and uses secondary

databases to examine standard travel patterns. This analysis questions the spatial fragmentation in the structure of local networks of connectivity in light of the apparent fragmentation between regional and local spatial planning strategies.

7.1 Placing splintering urbanism in the Bogotá-Soacha conurbation

According to the 2003 population census of Soacha, non-migrants⁴⁷ represented 14.6% of the population while migrants were 81.6% (CCB, 2005b). Continuous increase of urban population in the vicinity of Bogotá has generated some pressure for better connectivity for the workforce that travels between the two cities. Such connectivity has been challenged by political and administrative limitations discussed in Chapters 5 and 6. Considering the relative importance of Bogotá in comparison with any other neighbouring municipality, most local investments are aimed towards providing better connections to the city, sometimes reducing expenditure on local connectivity, particularly in low-income areas. As argued in Chapter 6, Soacha faces challenges in relation to its capacity for governance, planning and investment, which constraints most transport planning and investment to maintain connectivity with Bogotá, often at the expense of local investment in the transport network as it will be discussed later.

A labour market analysis conducted in Soacha from the last census characterises the municipality as a typical 'dormitory city' that depends largely on Bogotá for its job supply (DANE, 2005). The concentration of employment shown in Chapter 3 involves larger travel distances from the peripheries and neighbouring municipalities for those wishing to access jobs. In a city with such marked urban primacy it is thus natural that the

⁴⁷ Defined as those born inside the municipality

primary road network is linked to main axis of activity and mass public transport services connect residential areas with the centres of opportunities.

Figure 7.1 shows the socioeconomic stratification of Bogotá and in combination with the Transmilenio network. The implementation of Transmilenio is an example of the influence of centralised opportunities on the transport network. The system considerably improved transport conditions in Bogotá, increasing average travel speeds from 13 km/h during the 1990's to 26 km/h during its first phase in 1999 (Gakenheimer, 1999). However, despite progress consolidating an inclusive transport network, the initial phases of the project focused on connecting main workforce, particularly in areas of strata 3, 4 and 5, and employment clusters leaving some areas of the region largely disconnected from such high-quality means of connectivity. This produced higher accessibility in relatively wealthier residential areas and limited connectivity in more distant neighbourhoods, which house mostly low-income populations. As shown in Figure 7.1, most areas of stratum 1 and a large share of neighbourhoods of stratum 2 are not serviced by Transmilenio. As a consequence, low-income commuters have become captive to lower-quality traditional and often informal modes of transport for making the last leg of their commutes or their whole trip. Low-income populations are continually displaced to the region's far-flung fringes remaining bounded to travel to the zones of the city with higher concentration of economic opportunities. The socio-economic distribution of the population across the city space puts in evidence the high level of segregation and differentiated access to transport infrastructure and high-capacity public transport such as TM.

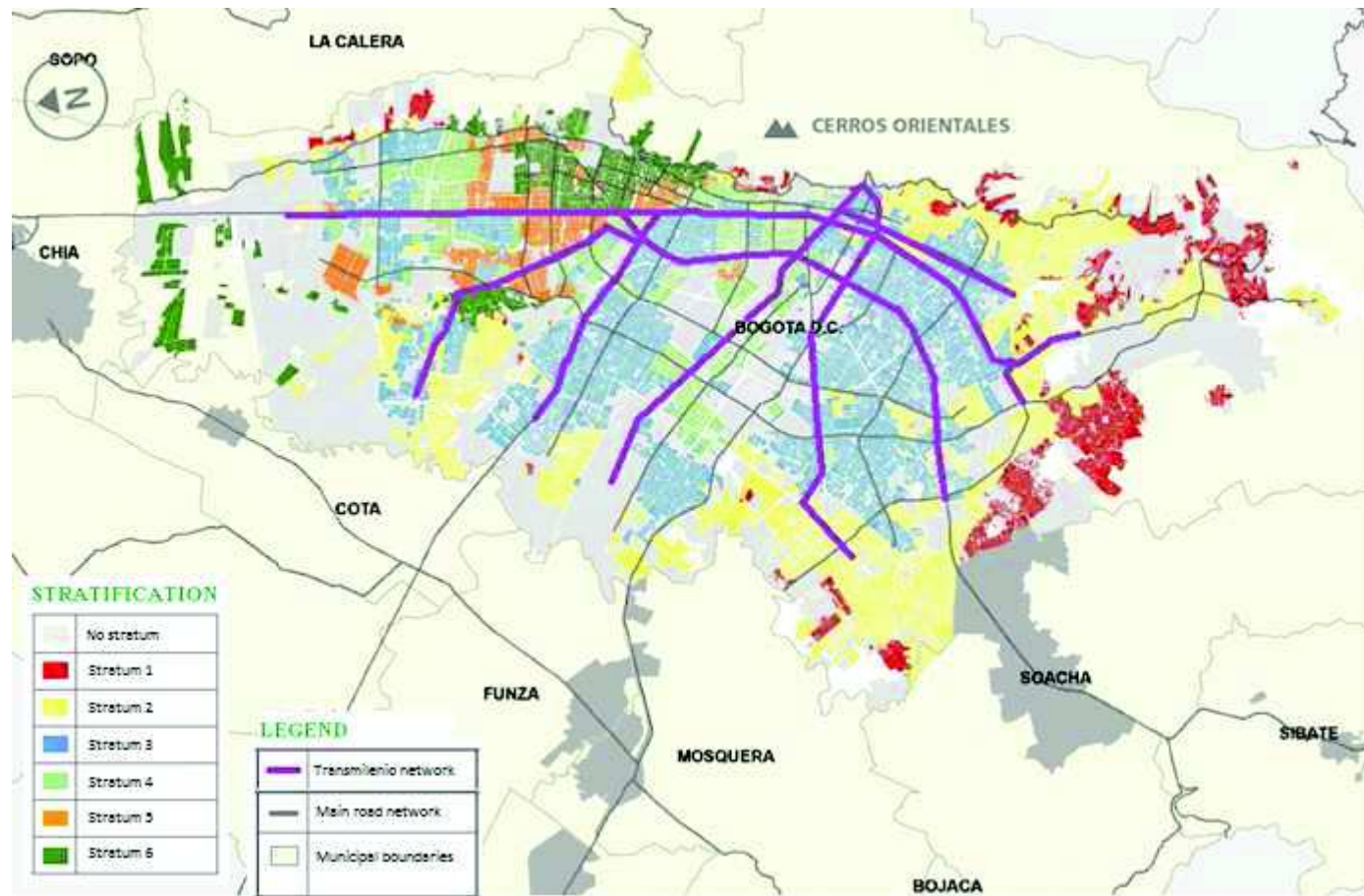


Figure 7.1 Socioeconomic Distribution of Bogotá and Transmilenio Network

Source: Origin-Destination survey for Bogotá DC and neighbouring municipalities (2011)

The historical legacy of an almost total lack of land-use policies that encourage not only mixed land use but a higher socioeconomic mix in residential areas have contributed to the consolidation of premium spaces in the areas of concentration of employment opportunities and access to the transport network. Higher accessibility produced as a result of transport investments combined with limited mechanisms for land value capture have allowed the market to capitalise on land price increases as new land is incorporated into the urban fabric, making new developments in areas close to the BRT less affordable for people with limited income (Bocarejo et al., 2014). In addition, existence of high-capacity road corridors in or along some areas of restricted urbanization has served as an excuse for informal land developers to continue promoting housing for the poorest under the promise of better connectivity and an eventual formalisation and provision of basic public utilities, adding to the phenomenon of concentration of low-income citizens in the peripheries and areas of informal housing. These dynamics have direct implications in terms of travel capacity and resulting accessibility of different socioeconomic groups. Figure 7.2 shows the average levels of individual motorised mobility in the city-region in contrast with location of the main road network and the central national corridor that serves as connection between Bogotá and Soacha (in red).

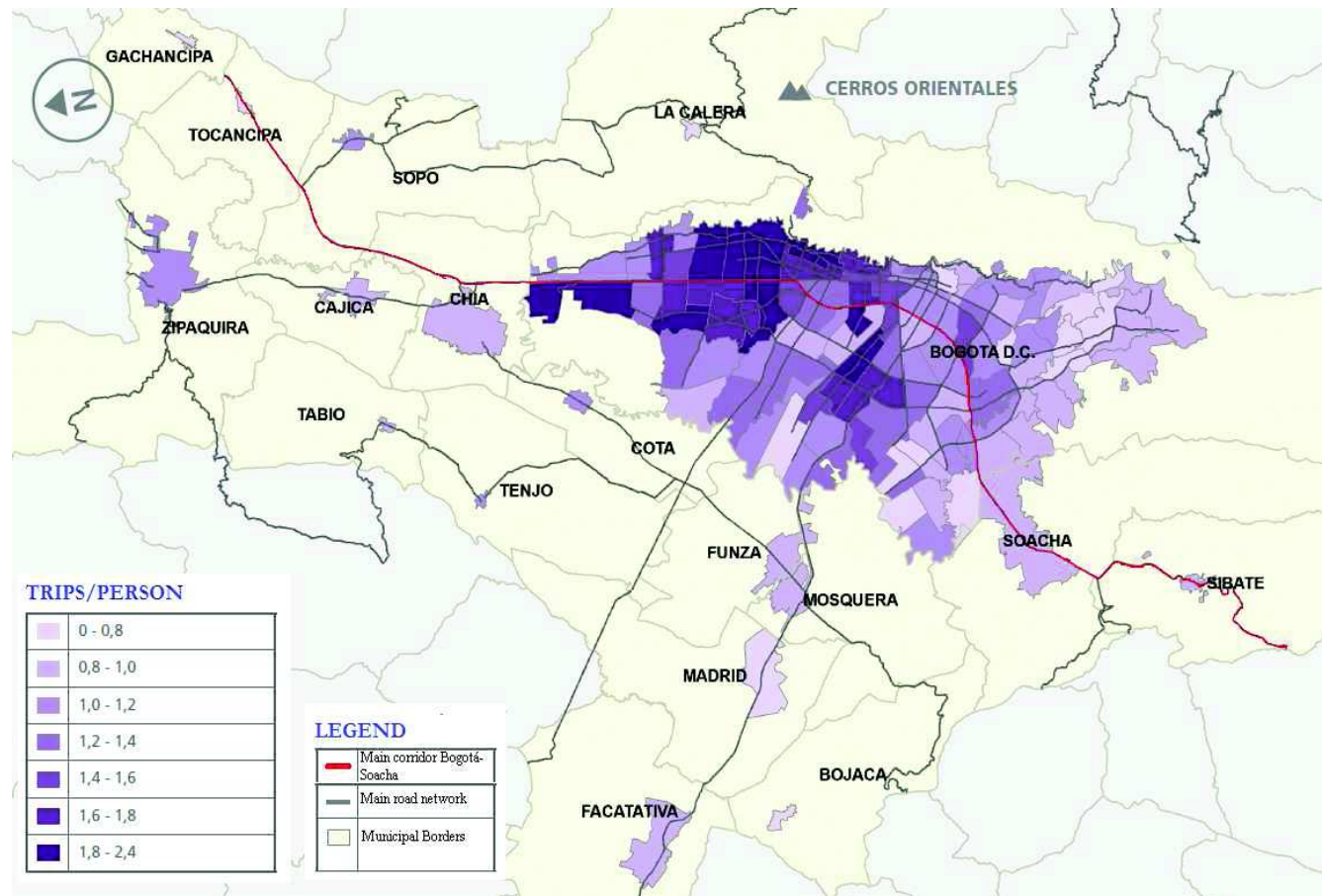


Figure 7.2 Average rates of daily motorised mobility and road network

Source: Origin-Destination survey for Bogotá DC and neighbouring municipalities, 2011

Bogotá's residents make 1.5 trips per day in average, with mean commuting times above one hour. Low-income households spend more than 20% of their income accessing productive activities in addition to long walking times in accessing public transport particularly in the peripheries (Bocarejo & Oviedo, 2012). These conditions are common in areas with low coverage of public transport and where there is a discontinuity in public transport services or infrastructure, such as lower frequencies of public transport, narrower and unsurfaced roads, and reduction of services at night, conditions often found at neighbourhoods in hilly areas in the south-eastern sides of the city (Bocarejo et al., 2016). This situation is aggravated by long distances to the centres of employment and poverty. As shown in Figure 4, in average southern areas present lower trip rates, suggesting high levels of immobility, while north-eastern zones, where higher income population resides and more opportunities are concentrated, have higher rates of daily mobility. Low coverage of transport infrastructure added to centralization and limited purchasing power in peripheral areas seem to contribute to low rates of motorised mobility in low-income areas.

The basic structure of the road network in Soacha is derived from one of the most important roads in the national network that connects the central region with the southwest and east of the country (Figure 7.2). This corridor plays a central role in the national road network by linking hubs of industrial production with the airport hub of Bogotá (Government of Soacha, 2011). The existence of this strong transport link has allowed the development of logistic facilities, access to water supply and location of different activities, including mining (mostly aggregates). Because it also works as a link between Bogotá and Soacha, the highway has been a determinant factor in the development of the conurbation between the two cities. As it gives Soacha strategic features in terms of connectivity to Bogotá, the highway became one of the main reasons for the significant development of low cost housing by both formal and informal developers, as well as of occasional

squatting on private and public plots. Rapid growth combined with conditions of poor governance and severe institutional weaknesses in the municipal government make provision of utility and communication networks very difficult in many low-income settlements (CCB, 2005b; Acevedo, Velásquez, & Bocarejo, 2013).

7.2 Soacha and Cazucá as bypassed areas in transport development

The central hypothesis for applying the splintering urbanism thesis to transport networks in Soacha lies in the notion of differentiated power and influence that leads to concentration of connectivity and bypassed nodes in the provision of transport infrastructure. Chapter 3 sought to reflect on the geographical and economic differences between Bogotá and Soacha, and Chapters 5 and 6 presented evidence of the governance features, which combined with the socioeconomic and geographical distribution of the Bogotá-Soacha conurbation place Soacha in a peripheral position to Bogotá, socially, spatially and politically. Despite conditions of decentralisation of local investments and autonomy for political and economic decisions, the relationship Soacha-Bogotá is marked by a profound dependency of the first on the second. In addition, Soacha is constrained by a limited capacity for raising tax revenues and evidence of informality and poverty that reduces its citizens' capacity to contribute to public funds while being paradoxically highly dependent on social welfare programmes.

7.3.1. Concentration of socially disadvantaged population in Soacha

As shown in section 6.3 of Chapter 6, multidimensional poverty in Soacha is still considerably high (35.9%), especially compared with the country's and Bogotá's averages (30.7% and 4.7%, respectively) (UNDP, 2011; DANE, 2014). Data at the Comuna level shows that Comunas 4 (Cazucá) and 6 have the higher percentages of population in multidimensional

poverty, with 57% and 42%, respectively, followed by Comuna 1 with 29% while people in Comunas 2, 3 and 5 in multidimensional poverty are less than 22%.

As shown in Chapter 3 and figure 7.2, Bogotá and Soacha are characterised by a clear socioeconomic north-south divide with strong spatial concentration of economic units of production. In this context, the absence of a metropolitan authority imposes a considerable strain on the control for land use, tax collection, infrastructure investment and provision and regulation of public services. Given its close proximity to Bogotá, Soacha's economy and labour market are highly dependent on the capital city. Accelerated trade liberalization and economic growth propelled a significant growth in Bogotá's economy, as reflected by economic figures in Chapter 3, increasing the attractiveness of the city and reinforcing migration patterns from the countryside during the 1990s and 2000s.

Soacha has one of the highest migration rates of ethnic minorities in the country, mostly due to internal forced displacement arising from the low-intensity internal conflict that Colombia has undergone during the past four decades. Of these minority groups, the majority is located in urban areas, in poor and overcrowded conditions, especially in the case of indigenous groups (Government of Soacha, 2011). According to data from the United Nations High Commission for Refugees, three of the six Comunas in which the municipality is divided house large proportions of displaced families (UNHCR, 2005). These areas are also marked by very low coverage of utility networks and high geological and seismological risks.

Most in-migrant population have very low levels of income, no job security, limited or no formal education qualifications, and perform unskilled work. In-migrants move to Bogotá in search of a better quality of life and access to education and employment, but settle in Soacha mainly because of lower land prices and rents, particularly in the informal housing sector (CCB,

2005b). Additionally, certain groups of migrants from Bogotá move to Soacha attracted by the possibility of acquiring new low-cost housing or building lots at bargain prices without having to renounce to opportunities in the main city (UNHCR, 2005). The poor move to Soacha because of Bogotá's proximity, reinforcing the dependency cycle between the municipality and the capital city and increasing the political, social and economic significance of investments in connectivity between the two cities.

Population census data for 2005 shows that, at 4.73, Cazucá has Soacha's lowest average in terms of years of formal education (DANE, 2005). Moreover, the municipality also has high levels of unemployment, with even more critical levels in Cazucá. The Municipal Development Plan (PMD) estimates unemployment in the municipality at around 15.6% affecting especially groups aged 15 to 24 (CCB, 2005b). In addition, there is a high incidence of child labour, particularly in the poorest areas, generating conditions for the intergenerational transmission of poverty. About 55% of Soacha's economically active population works in Bogotá despite the high presence of manufacturing and extractive industries locally and a recent reactivation of the local economy.

In Soacha, most recent migrants are not employed in the local economy, giving rise to subsistence and informal markets (CCB, 2005b). Unemployment rate in the municipality was 45% in 2006, with a limited portion of the economically active population employed in industrial activities (23%), and about 32% occupied in informal employment (Government of Soacha, 2006). More recent exploratory and qualitative data obtained by the local government does not suggest a positive evolution of employment figures (Government of Soacha, 2010).

7.3.2. Urban and infrastructure development in Soacha and Cazucá

Soacha endures a generalised lack of public spaces, being Cazucá one of the most critical cases of deprivation from adequate urban facilities. Official figures showed an average coverage of public spaces in the municipality of 0.5 m²/inhabitant in 2010 (Government of Soacha 2011). Inadequate planning and disordered public land use have resulted in insufficiency and poor quality of streets, nearly inexistent green areas or parks, and a generalised lag between supply of utilities and rates of population and urbanisation growth (CCB, 2005b). In terms of local facilities for education and healthcare, the local government has made substantial investments in increasing coverage of healthcare facilities and primary education in both formal and informal neighbourhoods. As a result, three health centres and four schools of primary and secondary education are available in the Cazucá with several additional facilities within 3 km from the farther neighbourhoods (Government of Soacha, 2011). In addition, public spaces for recreation, health and education have been donated by local and international NGOs, increasing availability of local amenities.



Figure 7.3 Evolution of informal developments in Cazucá

Source: Government of Soacha (2000), Torres (2008) and Acevedo et al. (2012)

Figure 7.3 illustrates the urbanization process of Cazucá over almost 20 years back to the early 1990s. By 1996, due to the influence of occupation patterns described earlier, the settlement spread and reached a high degree of consolidation in only six years. Currently the extent of the study area provides little more than an imaginary division within a mountainous area occupied by a vast number of low-income self-built housing. However, infrastructure investments in Bogotá clearly stop at the boundary with its neighbouring municipality. Field observations show that investments in infrastructure (i.e. sewerage and water supply) near the border can be available in a house and absent in the next because official records show it as belonging to either Bogotá or Soacha, despite what appears as physical continuity within one neighbourhood. People in Soacha are

bounded by geographies of administration and power and are unable to exert any political influence on Bogotá.

The existence of the division in Comunas and Neighbourhoods (see Figure 6.3), both formal and informal, influences the governance of the municipality and issues described in Chapter 6, and provision of means for connectivity. In this regard, advocacy and representation are framed on administrative, geographical and social boundaries that define Cazucá's position in the planning and decision making processes related to transport infrastructure and services, as discussed in section 6.3. On the one hand, representation in the Municipal Council is limited as only one of its eighteen members openly advocates for the interest of Comuna 4 (Concejo de Soacha, 2014). On the other hand, although neighbourhoods in each Comuna have a local board of representatives (JAL- see Chapter 6), these local leaders have in practice little influence on the planning processes and do not have enough political capital to pursue higher representation in the Municipal council. Limited political capital added to conditions of informality and social stigmas in the area become strong constraints for local representatives from Cazucá to influence decision-making processes in relation to infrastructure in the municipality.

Lack of power and influence in the general governance scheme of the municipality adds to limited financial and technical capacity in the local administration as shown in Chapter 6. According to Soacha's Municipal Development Plan, local representatives and advocacy organisations are bounded to request funding and investment to the municipal government in Soacha. This is conditioned by the limited availability of financial resources to respond to considerable deficits in all types of infrastructure throughout the municipality, as well as large demand for social programmes and welfare (Government of Soacha, 2000; CCB, 2005b). In addition, many local investments in the adjacent neighbourhoods of Bogotá are administered by the city's local governments, also constrained by their own

budgets and jurisdiction. The Locality of Ciudad Bolívar in Bogotá, where low-income settlements adjacent to Cazucá are located, has had one of the lowest comparative investment in transport-related infrastructure of the city between 2006 and 2010 (IDU, 2012). On the one hand Cazucá is neglected by investments in the neighbouring city as it does not belong to Bogotá. On the other hand, the local administration in Soacha is unable to supply infrastructure and services to informal neighbourhoods, particularly those on land officially restricted for housing in urban plans. As shown in Chapters 5 and 6, marked differences in power and autonomy between Bogotá and Soacha can be associated with the physical structure of the transport system that connects the two cities. Lack of legitimacy in Cazucá adds to the limited availability of resources for investment in urban transport infrastructure by the local government, increasing the disconnection of the area from the rest of the urban fabric.

As a result of the comparative disconnection and institutional weaknesses between Bogotá, Soacha and Cazucá, utility and connectivity networks in Soacha are insufficient for the size and growth of its population. Public underinvestment and rapid and chaotic urban growth poses difficulties for adequate institutional responses in terms of health, education, housing and security. By 2005, 96.7% of households had access to electricity, 82.8% to water supply and 83.6% to sewerage (DANE, 2005). In the area of Cazucá, however, levels of access to utility networks are much lower than the average for the municipality. In fact, in a population of 69,325 inhabitants in 2005, 74.7% lacked connection to the water supply mains, 66.2% were not covered by networked sewerage and 63.6% were not served with natural gas (Acevedo et al., 2012). This contrasts significantly with dwellings located over the border in Bogotá, which have near 100% coverage in almost all utilities (Bogotá Cómo Vamos, 2011). This shows a clear splintering in the provision of urban infrastructures. Although population in Soacha does not belong to the same higher-income groups that can be

found in Bogotá, investment does follow a pattern that gives preference to more consolidated and richer neighbourhoods and Comunas in the municipality. According to an interviewee in the Soacha's Infrastructure secretariat, Comunas 2 and 3 were allocated approximately 50% of the 2012 infrastructure investment budget (M; 33, PC, MA). In addition, local connectivity has been greatly improved in Comunas 1 and 3 as a result of widespread development of housing projects by the private sector, which encompass investments in surfacing and expansion of local roads (M; 33, PC, MA). The more productive areas and those neighbourhoods more relevant for the local economy present much higher coverage than what can be found in areas with higher presence of informality (CCB, 2005b).

In relation to transport, pre-existing infrastructure has played a determinant role in the evolution of informal settlements in Cazucá and the high consolidation rates achieved in the area. Previously built roads for industrial purposes that connect to the main highway have been historically the main entry path to the area. Developers used the small road networks used for quarries in the periphery of Soacha to organise informal land occupations in the hills, either through informal sales distribution of land and housing units, or through illegal invasion of private and ecologically restricted land. The pre-existence of these precarious networks partly explains the fragmented connectivity of the settlements with the rest of the urban fabric and the current under-investment in road infrastructure. The main road connection to the neighbourhood is the somewhat grandly termed Avenida Terreros, which was there long before the urbanization processes in Cazucá and served as connection to the main highway for heavy vehicles and machinery that operated in the quarry (Dávila et al., 2006). This corridor progressively became the central axis for the operation of public transport routes, both formal and informal, that started serving the increasing demand that was consolidating after 2000. In the following years, because of urbanization and consolidation of developments closer to the main road

connecting Soacha with Bogotá and the dynamic development of Cazucá, a basic road network was built, although it has not been substantially upgraded in the last decade. The lack of public investment in the area has created an incomplete road network marked by poor maintenance and limited capacity. These roads are not only insufficient for the adequate circulation of motorized transport but also pose a constraint for pedestrians as there is insufficient space for sidewalks or kerbs (CCB, 2005b).

According to the Land Use Plan of Soacha (Government of Soacha, 2000) in 2000, 49% of roads in the municipality lacked surfacing, 34% had fair pavement quality and only 17% were considered to be in good condition. Hilly areas and more remote developments that have been consolidated informally are almost generally limited to narrow and unpaved streets with no or very little maintenance. As shown in Figure 7.4, Cazucá has one of the most underdeveloped road networks in the municipality (identified in red and blue respectively), low capacity, high levels of surface and structural damage and lack of adequate surfacing. Most of the local roads feature poor design and are too narrow for adequate two-way traffic (CCB, 2005b).

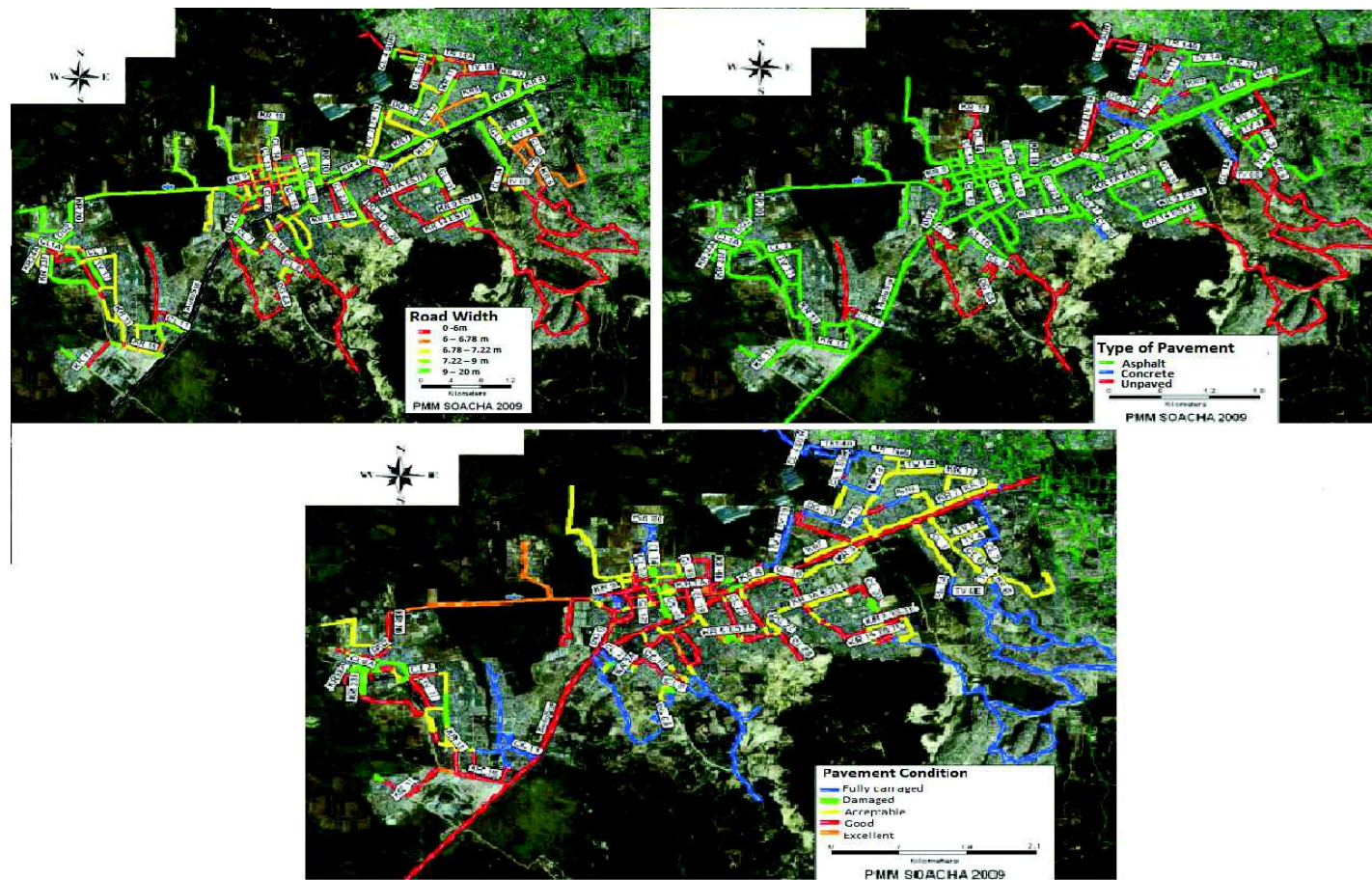


Figure 7.4 Road network inventory of Soacha

Source: Master Plan of Transport for Soacha (Government of Soacha, 2009)

A diagnosis made as part of the municipality's transport master plan developed between 2008 and 2009 produced initial data to inform further planning decisions, and evidence awareness of the severe problems in infrastructure and transport planning in the municipality. However, conditions of the road network in Cazucá show little level of response from local authorities in comparison with other Comunas. In more central or strategic areas of Soacha observable conditions of surfacing is at minimum acceptable while in Comuna 4 roads lack basic surfacing and adequate carrying capacity.

Like other essential urban networks, road infrastructure in the municipality is precarious at best. There are no direct connections between different neighbourhoods in Cazucá and in Comunas 1, 6 and 5, creating severance problems between settlements located in the north and south. Most local roads are not continuous and only have four access points to the main artery connecting to Bogotá, resulting in high congestion and walking times (Government of Soacha, 2011).

7.3.3. Making connections between infrastructure, lack of attractiveness, and public transport services

The limited provision of material road infrastructure in Soacha and Cazucá has direct implications on the availability of transport services. Considering the few suitable corridors for public transport operation in Cazucá, it is not surprising that the number and type of public transport available is as limited. As shown in Figure 7.5, although coverage of public transport is limited in the municipality, Cazucá (number 2) had the lowest provision of formal public transport routes in 2008, thus worsening the disconnection from more remote areas of the settlement on top of severe limitations in road infrastructure (Transmilenio, 2009).

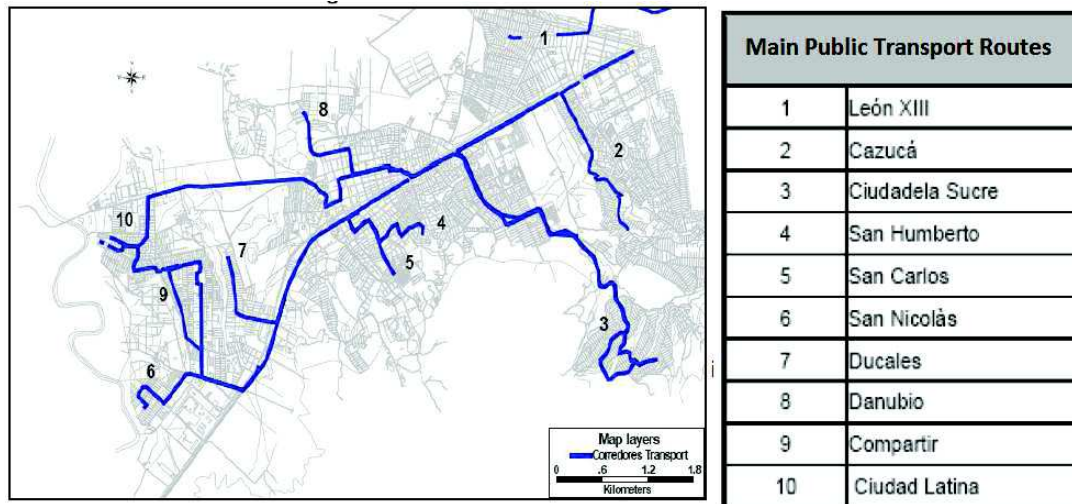


Figure 7.5 Coverage of public transport services - 2008

Source: Transmilenio (2009)

Topography and urban sprawl have made it difficult to provide adequate roads in Cazucá. Local leaders interviewed coincide in identifying very scarce levels of investment in road infrastructure in the area. No new roads have been opened in any of the neighbourhoods and the most recent investments in road maintenance and rehabilitation were placed between 2010 and 2011 in the neighbourhoods of Julio Rincón, Caracolí and Ciudadela Sucre. These are not only the oldest and most regularised settlements in Cazucá, they also present milder slopes and better conditions for access of the resources required to carry out maintenance activities. Most local roads have poor design and have considerable restrictions for circulation of heavy vehicles, which limits considerably possible areas of operation for public transport. Field research allowed to identify four main corridors that can be served by public transport (either formal or informal) in Cazucá considering road widths, slopes and conditions for circulation. These are illustrated in Figure 7.7.

The municipality of Soacha has 120 routes of public transport on its official records according to data gathered and reviewed by Transmilenio S.A. for the operational design of the extension of Bogotá's BRT to Soacha. Of these routes, 98 legal routes operate between Soacha to Bogotá, supplying the commuting demand that depends from Bogotá, and 22 local routes that operate inside the municipality, providing local connectivity services throughout Soacha (Transmilenio, 2010). Field explorations and interviews with service providers and local community leaders allowed to identify 4 formal companies serving Cazucá and 6 informal organisations providing public transport that altogether serve the routes identified in Figure 7.6 through 10 services distributed along the corridors identified in 2013. The service provided is of poor quality, with older vehicles (76% of the existing fleet is over 11 years) and generally poor conditions for road safety and comfort (Acevedo et al., 2012). However, both quantitative and qualitative deficits in road infrastructure makes it very difficult even for smaller vehicles to provide services in other corridors. These irregular services of low-frequency (between 2 and 8 vehicles per hour in non-peak and peak hours, respectively⁴⁸), however, operate at considerably lower fare costs compared to formal public transport as shown in Chapter 8.

⁴⁸ *Measured in the field*

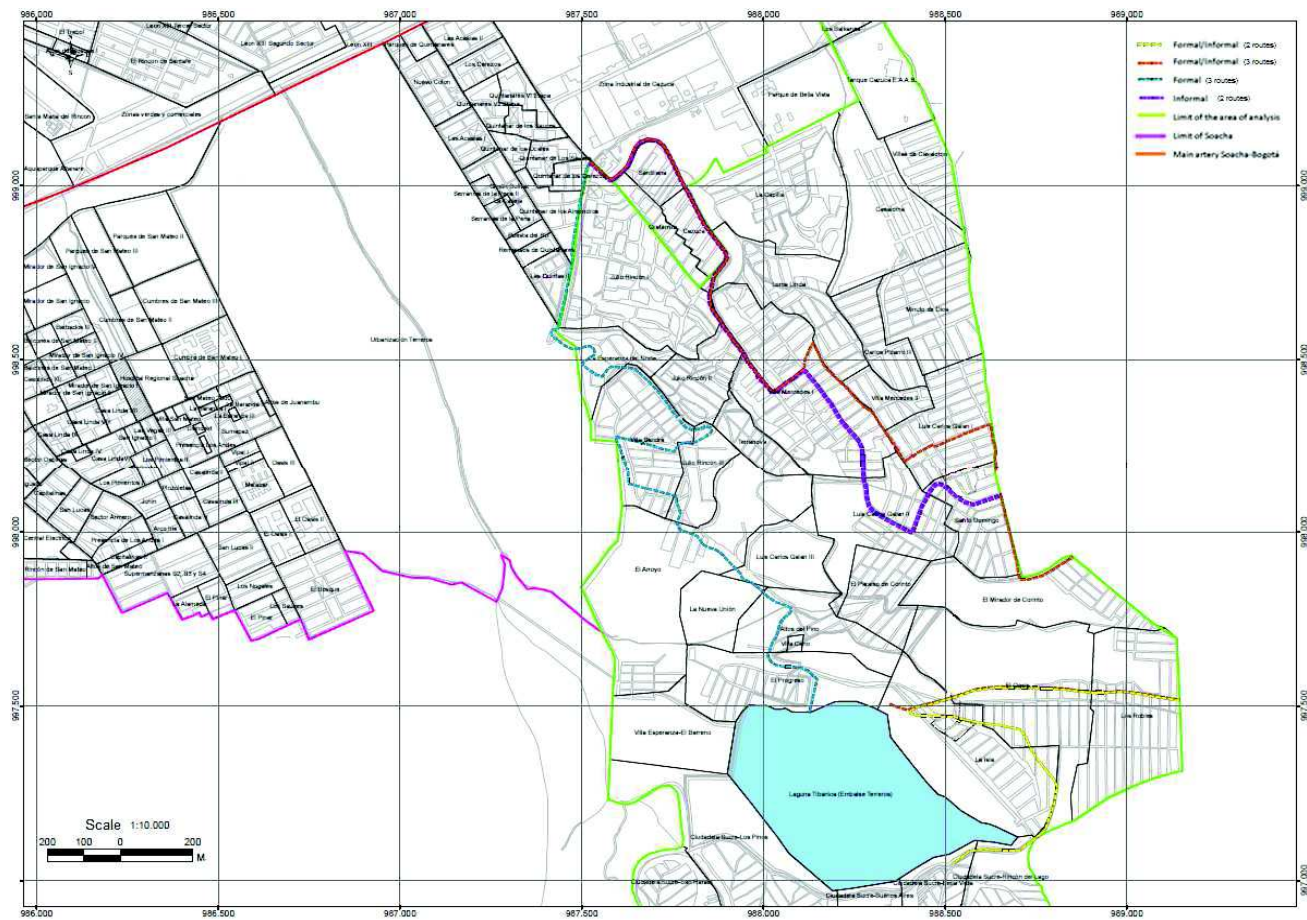


Figure 7.6 Spatial structure and type of local transport services in Cazucá - 2013

Source: Own elaboration based on data from Soacha's Land-use Plan and field Data

Evolution of transport networks in parallel to the development of Cazucá has been only in scale as demand increases. Although in 2013 there was a higher number of public transport routes with higher frequencies, their scheme has remained unchanged and operates at a local scale. 98% of the routes in Cazucá operate only inside the municipality, covering mostly trips from the area's inner settlements to the main highway where passengers can transfer to routes providing services towards Bogotá or downtown Soacha. This forces commuters to pay at least a second full fare to continue elsewhere (e.g. Bogotá) given the current lack of integration in public transport services (Transmilenio, 2009).

These features limit considerably accessibility from the area of analysis. First, lack of good-quality road infrastructure and public transport services means that access times are particularly high. The low number of corridors for public transport operation, erratic frequencies and limited services, generate considerable barriers for interaction and increase transport expenditure as a result of interchanges. According to data from Metro de Medellín (2008), average daily transport expenditure in Cazucá represents between 19% and 27% of household income, well above the average found for low-income areas in Bogotá between 17% and 24% in neighbourhoods in areas such as Bosa and Ciudad Bolívar, respectively (Bocarejo & Oviedo, 2012).

7.3.4. Exploring the influence of fragmented transport networks in travel patterns in Soacha and Cazucá

Acevedo et al. (2012) identified through empirical evidence that the most relevant transport problems in Cazucá are related to inadequate supply of transport infrastructure and services, low accessibility, and economic and personal barriers for accessing public transport. This has severe implications in terms of prescribing mobility patterns and limiting the levels of interaction of the people in Cazucá with the opportunities in Soacha,

Bogotá and the rest of the region. This is reflected in poor capacity to travel and very low average rates of individual mobility in the municipality. According to data of the 2005 mobility survey and technical studies of Transmilenio S.A, Soacha's inhabitants conduct less daily trips than equivalent income in Bogotá as shown in figure 7.7. Despite showing a positive evolution, average rates of motorized trips in Soacha remain very low in comparison with its neighbour. Moreover, Cazucá presents a considerably lower trip rate in comparison with the average trip rate of Soacha in 2005. Not only data suggests a limited investment on connectivity in the neighbourhoods of Comuna 4, it can be argued that overall capacity for travel in the area has improved at a slower pace than the average of the municipality and other areas with higher income.

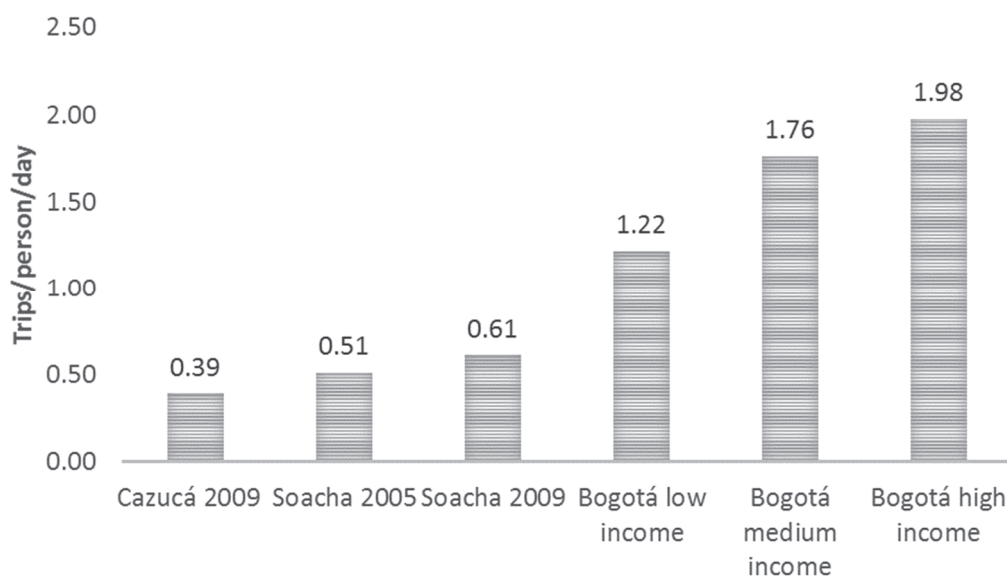


Figure 7.7 Comparison in motorised rates of mobility between Soacha and Bogotá

Source: Own elaboration based on Transmilenio (2009)

A more detailed comparison of daily trip production between zones of Soacha accounting only for motorised trips show a clear differentiation in transport demand in the municipality. Although Soacha has in general a very low rate of motorised mobility, spatial distribution of trip production

shows inequalities in terms of travel capacity as shown in Figure 7.8. In addition, mobility in the municipality is highly dependent on Bogotá, with 85% of demand in the morning peak commuting between Soacha and different areas in the capital city (Secretaría de Movilidad de Bogotá, 2011).

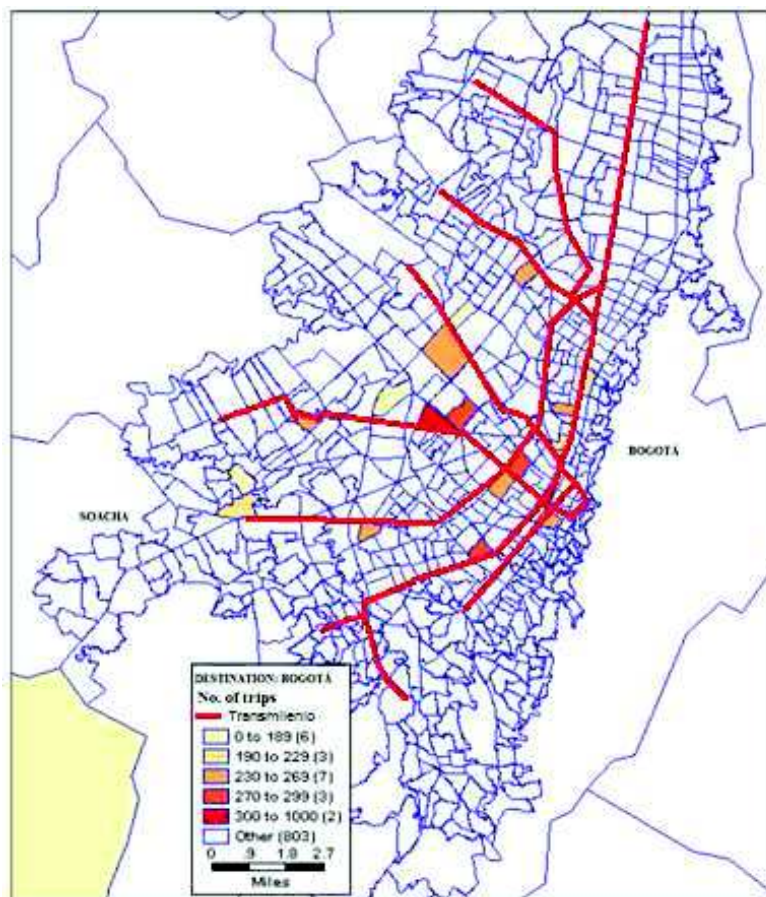
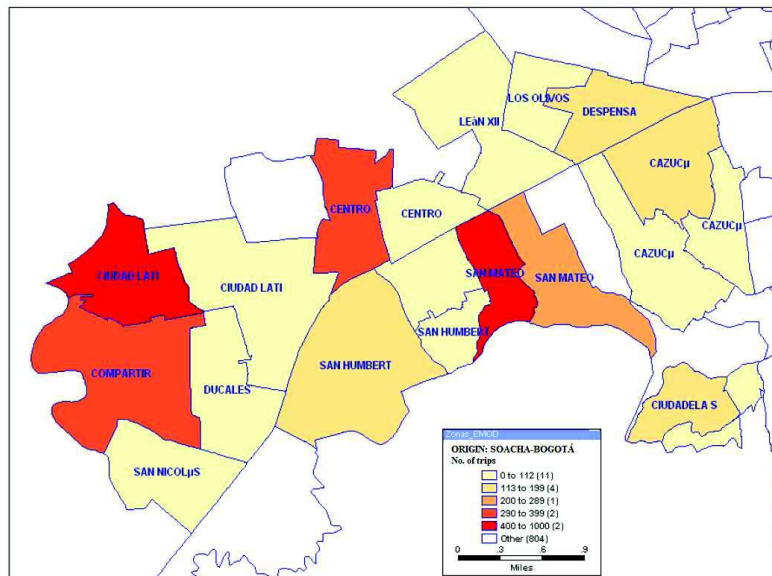


Figure 7.8 Origins and destinations of Soacha-Bogotá trips in the morning peak hour

Source: Transmilenio (2009)

Figures from origin-destination surveys of the Bogotá's city-region (Secretaría de Movilidad de Bogotá, 2005, 2011) show Soacha generates approximately 21,000 trips in the morning peak hour, and about 200,000 daily trips. Of these, only 8% are on private vehicles and 93% have Bogotá as main destination. Transport demand in the municipality has grown at a 6% annual rate between 2005 and 2011 (Secretaría de Movilidad de Bogotá, 2005; 2011).

Cazucá represents about 15% of transport demand in the municipality. 85% of transport demand in peak hours traveling to Bogotá involves distances of between 17 and 24 km. A comparison between different areas in Soacha grouping the Comunas shown in table 7.1 for the analysis of the data in the Origin-Destination survey for the Bogotá region (Secretaría de Movilidad de Bogotá, 2011), shows wide differences in travel patterns between areas of Soacha. Cazucá not only has the highest travel times (both in vehicle and walking to motorised transport), people in the area also spend comparatively more in transport per individual trip. This shows imbalances throughout Soacha that can be linked with the characteristics of the transport network outlined in this chapter. These figures also suggest wide differences in accessibility, based on the definitions of the concept introduced in Chapters 1 and 2.

Table 7.1 Average travel patterns of Soacha during the morning peak - 2011

Travel costs per trip	Comunas 3 and 5		Comuna 4 (Cazucá)		Comunas 2 and 6 (Soacha historical centre)		Comuna 1	
In-vehicle time	74	min	106	min	81	Min	92	min
Walking time (to a motorised mode)	6	min	13	min	5	Min	7	min
Travel cost	2,700	COP ⁴⁹	3,125	COP	2,800	COP	3080	COP
Travel distance	17	km	21	km	20	Km	24	km

Source: Own elaboration based on Origin-Destination survey for Bogotá DC and adjacent municipalities, 2011

In addition, travel demand from Cazucá is highly dependent on public transport services. 85.1% of trips generated are made via public transport, with an average travel time of 79.3 minutes. 8.6% of internal trips (i.e. within Soacha) are non-motorised⁵⁰, with an average travel time of 40.2 minutes. Moreover, the use of transport services only at a local level involves high levels of expenditure in travel for most of the population in Soacha. On average, 6% of Soacha residents spend up to US\$ 1 per trip, 55% between 1 and 2.5 US\$, and 39% more than 2.5 US\$ per trip. In a municipality where most monthly incomes are close to the minimum legal wage (270 US\$), these levels of expenditure hinder mobility for household members and reinforce social inequalities and exclusion across the conurbation. As shown in figure 7.9, this is translated in 31% of the population spending between 30 and 33% of their income in transport and 76% of the population in the municipality spending at least 20% of their monthly income in transport.

⁴⁹ 1 US\$ = 1,869 COP

⁵⁰ Refers to walking and cycling

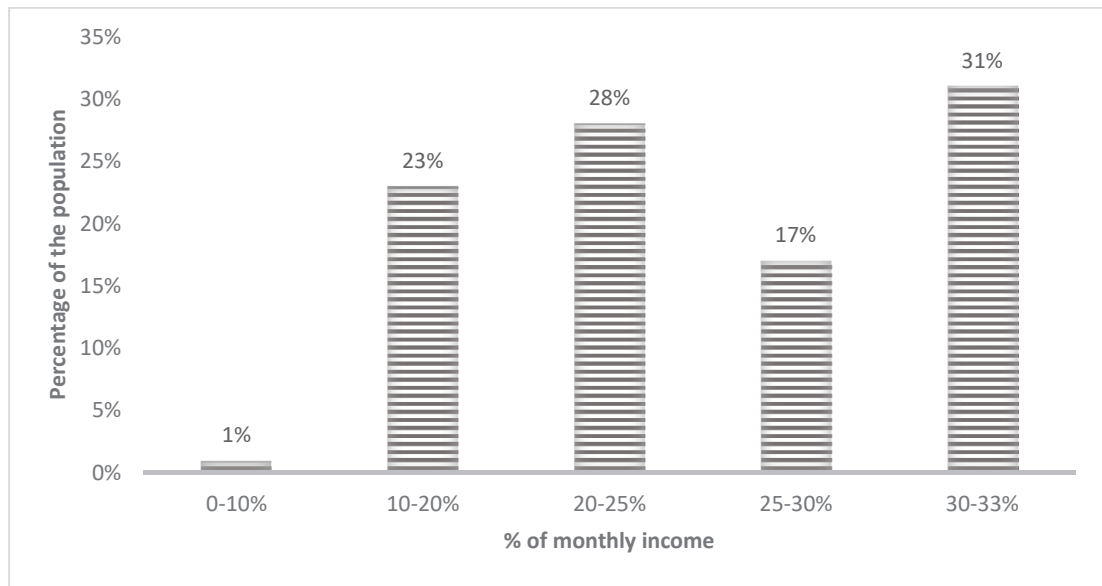


Figure 7.9 Soacha: Distribution of economic travel expenditure as percentage of the individual monthly income - 2011

Source: Own elaboration

Cazucá's dismal conditions, not only in relation to low income and unemployment but also to access to services and amenities and geographical and physical barriers for mobility shown in Chapter 4 and this chapter, add to a long list of limited availability of resources and assets required to overcome poverty. Not only people in the case study have constrained access to adequate living conditions and infrastructure, they also have limited choice for accessing income-earning opportunities. Previous works conducted in the area suggest that the main social and economic problems of Cazucá are mainly related to limited purchasing power, long working hours, single-parent households, and difficult access to sources of employment and education (Alvarez & Bocarejo, 2013). According to empirical evidence, most workers of the area have precarious job conditions, low salaries, variable income, and informal job contracts. In this case, besides some spatial barriers for accessing income, the main constraints when obtaining a job were related to lack of qualifications and social stigmas related to the high incidence of crime and insecurity in the neighbourhoods, reducing considerably access to employment, health,

education and social interactions of the inhabitants of the Cazucá (ibid.). In the case study area, travel patterns for accessing income-earning opportunities usually involve long periods of travel towards Bogotá subject to long walking times and high financial outlays for individuals and their households. These are also constrained by local dynamics of crime and violence that limit the areas and times where it is possible to travel on foot (POT, 2011; Acevedo et al., 2012), which will be explored more in detail in Chapter 8.

7.3 Recent changes in transport infrastructure policy in Soacha: The example of Transmilenio in Soacha

An extension of Transmilenio bus rapid public transport system from Bogotá to Soacha has been openly discussed since the early 2000s with the aim of supplying increasing demand from a work force that makes a non-trivial contribution to the economy of the capital city⁵¹. In 2002, the national government decided to adopt the BRT scheme as the backbone of urban transport policy for major cities of the country. As a tool to promote this policy, the government pledged to finance a substantial part of the infrastructure costs of BRT systems where municipalities decided to undertake the respective projects. However, priority was given to the largest cities in the country. Given Soacha's position in relation to the capital city, as well as technical and institutional weaknesses inside the municipality to develop such a project, the national government decided to explore the possibility of extending the Transmilenio network to Soacha rather than developing a BRT project for the municipality on its own.

⁵¹ Data from the Chamber of Commerce of Bogotá (CCB, 2009) calculates that about 55% of the economically active population in Soacha works in another municipality, with 45% of higher-paid employees working in Bogotá.

The government of Soacha expressed interest on such initiative. However, being part of the province of Cundinamarca, negotiations about the project had to involve the national government and Bogotá's as central stakeholders of Transmilenio but also Cundinamarca's as provincial authority. This institutional framework for the project meant the interaction of stakeholders with different levels of power and influence and different interests in relation to the project. On the one hand, the national government was required by law to provide 70% of the financing costs of mass public transport investments, which makes it one of the main stakeholders in the project. In addition, Cundinamarca's government was required to support the municipality in financing part of the remaining share of the projects costs, seeing the project as an opportunity to consolidate the sub-region around Soacha. Finally, Bogotá as owner of Transmilenio would be responsible for project management, and overseeing the design and operation. In this regard, the role of Soacha was limited despite having the highest interest in the project in relation to the benefits it would provide to its population. Given the financial constraints of the municipality discussed in Chapter 6 to cover its required share of the financing scheme, the local government faced additional challenges for influencing the development of the project to respond to its priorities.

In late 2002 an initial study of traffic demand between the two municipalities and a first proposal for the project were developed. The project involved an extension of 5.5 km of the corridor planned for Bogotá, with seven stations and a centre of operations, and was divided into three phases to alleviate the limitations of co-financing. In 2003 Transmilenio awarded the operation of Phase II of the BRT system (See Chapter 3), including the trunk and feeder operation to and from Soacha within that contract. The design of the system encompassed four stations that covered only a fraction of the municipality, which left the majority of the municipality, including the historic centre of Soacha, unserved by the BRT's trunk services (see figure 7.10).

modify institutional, legal and financial frameworks to develop the project given the institutional and regulatory constraints shown in Chapters 5 and 6. However, this also meant for the project to be always identified as a 'special' initiative, becoming an annex of bigger projects and policies due to the inexistence of metropolitan governance.

To formalise the changes to the project, the national government issued a new policy document that defined in higher detail the contribution from the national government (69.5%), Soacha (20.5%) and Cundinamarca (10%). The timetable envisaged that the work started in the first quarter of 2006 and ended in mid-2007, subject to compliance with requirements including signing the agreement between co-financiers and approval from the Ministry of Transport and the National Institute for Concessions regarding the relevance of adding the Transmilenio system works to the concession Bogotá - Girardot. As a result of this decision, which was ultimately taken at the national level because of the aforementioned institutional and financial constraints, a new contract was signed for the technical restructuring of the BRT system in Soacha that responds to the new specificities of the project. In this case, Transmilenio undertook a study to measure demand and explore alternatives for an operational scheme integrated with the existing public transport network within Bogotá. This project included restructuring local routes and improvement in the coverage of public transport in the municipality, implying fleet size reduction and optimisation of vehicle distribution.

The operational design of Transmilenio for Soacha aims to turn the BRT into the backbone of public transport operation in the municipality, complementing it with feeder routes for local coverage. Feeder routes proposed for the Transmilenio system were restructured in relation to frequencies and other operational characteristics. However, their layout is almost the same as in traditional routes, evidencing the restrictions imposed by local infrastructure. In this regard, the design of the new system

builds on the ability of traditional to respond to public the distribution of the demand and adapt to the infrastructure-related constraints. However, lack of integration between public transport planning and infrastructure development, both technically and financially, limits the benefits of the system in terms of coverage especially in areas like Cazucá as shown in Figure 7.9.

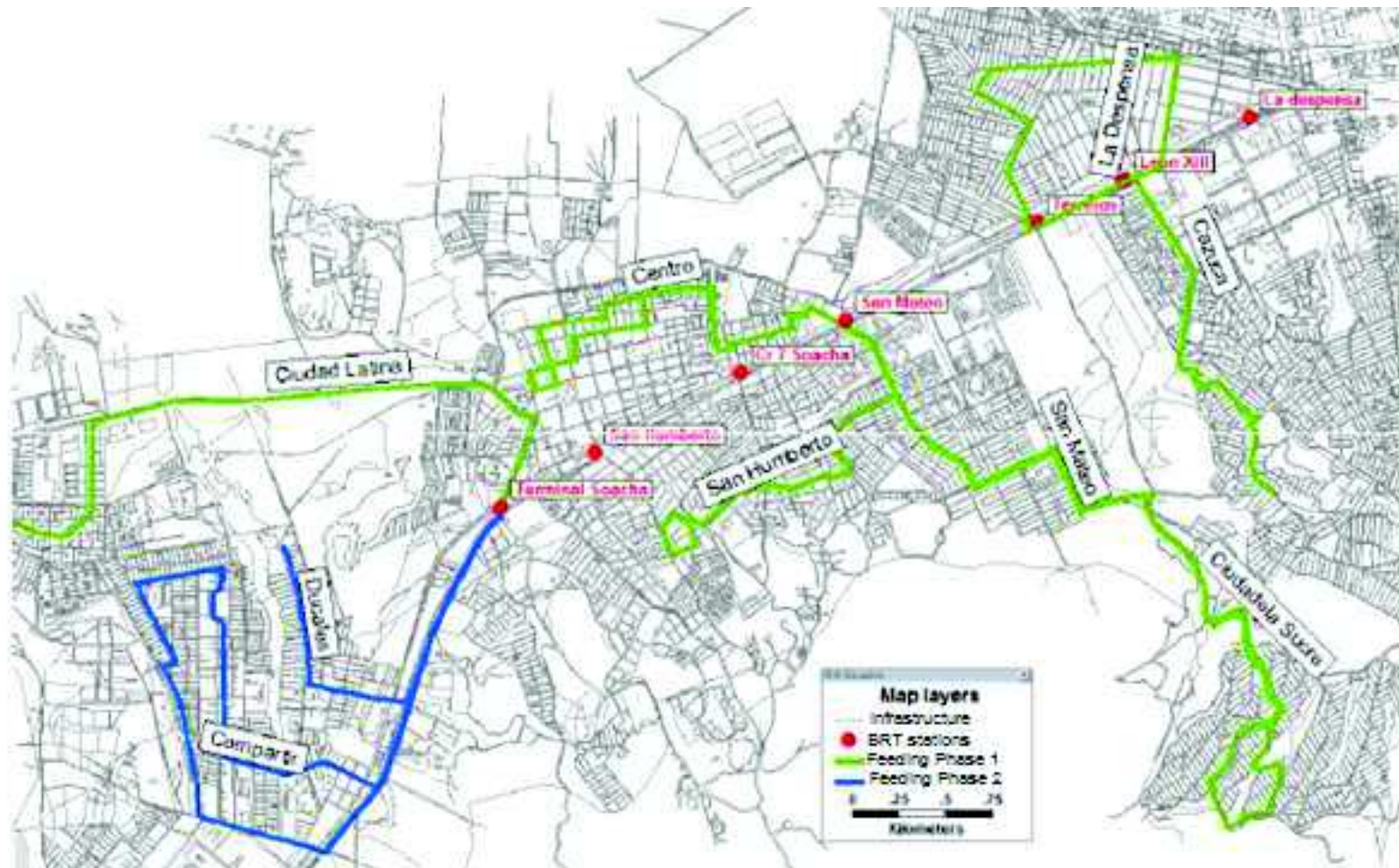


Figure 7.11 Operational Scheme of Transmilenio in Soacha

Source: Transmilenio (2009)

The operation of Transmilenio goes beyond the timeline set for this research. However, this project represents a change in previous practices for provision of public transport, and to some extent infrastructure, in the municipality. However, the decision making processes involved in the definition of this new system in the municipality is a clear example of the fragmentation in spatial and infrastructure planning in centre-periphery systems like the Bogotá-Soacha region. Although the project relied on comprehensive technical assessment of its relevance and a financial scheme that built on the experience with Transmilenio in Bogotá, decisions made in relation to its development were mostly originated from outside Soacha. Despite the timeframe for the project being set for a relatively expedite implementation, the project was only able to start its operation in late 2013, over six years after its original launch date, and without including the feeder routes (El Espectador, 2013). In addition, the project reflects the fragmented institutional framework for transport planning in the region, which is a direct consequence of lack of a metropolitan authority for Bogotá and the region (see Chapters 5 and 6).

Although the municipality was one of several project stakeholders, most of the decisions regarding the project were in fact made by Transmilenio, an institution based in neighbouring Bogotá as explained in Chapter 5. This influenced the design of the project, focusing more on the aggregated mobility of the residents of Soacha towards Bogotá rather than a comprehensive intervention to local and external connectivity. As shown in Figure 7.9, the feeder system for the BRT in the area of Cazucá is still limited by the same corridors used by the current public transport services. The additional investment in road infrastructure to increase coverage was discarded, even though the project involved funding from the municipality. Moreover, some of the main travel destinations for residents in Soacha, as shown in Figure 7.8, although covered by Transmilenio require transfers between trunk lines not currently connected, either increasing travel and

transfer times or requiring interchanges with traditional public transport. In the absence of an integrated single-fare system, for users the transfers involved compound the already high Transmilenio fare compared to current bus service fares. Trips involving Transmilenio and one additional transfer to local traditional transport in the absence of the feeding system can escalate from 3125 COP (US\$ 1.67) to 3500 COP (1.87), which can increase considerably the expenditure figures shown in Table 7.1 and figure 7.9 as the individual costs can be up to 31% higher than the original cost per trip (this would represent around 38% of the minimum legal wage in the country for conducting 22 trips a month). This places higher strain on low-income residents in areas like Cazucá.

While the benefits of the system are by no means undermined by this analysis, it is clear that they are rather limited for residents of the case study. In particular, it fails to solve the issues of connectivity within the neighbourhoods and increases the cost of the service compared to current public transport alternatives, at least for the people in Cazucá. The design of the project reflects the need to connect the different areas of the municipality with Transmilenio and thus to Bogotá. However, local mobility is bound to suffer from larger severance produced by a broader highway and the segregated infrastructure of the BRT. Moreover, according to Alvarez and Bocarejo (2013), as a result of the conditions of low income and illiteracy in the population, a more organized system like Transmilenio has access limitations related to affordability and suitability. This limits the travel choice of the population to conventional public transport (buses and shared taxis) and walking, with the resulting problems of long walking distances, long travel times, and low trip generation in households.

7.4 Splintering urbanism in Soacha and Cazucá and the link with social exclusion

The main argument of the thesis is that differences in power, influence, and governance capacity can be connected with a fragmented provision of transport networks of infrastructure and services. Such connection, I argue, can be explored from a splintering urbanism perspective (Graham & Marvin, 2001). First, it was necessary to examine the general characteristics of Bogotá and Soacha and the demographic, economic and spatial differences shown in Chapter 3. These were expanded in relation to recent urban development in Bogotá and its surrounding region and the governance and planning frameworks in Bogotá and Soacha. Evidence shown in Chapters 5 and 6 in relation to such frameworks suggest wide differences in power, autonomy and governance capacity, which, combined with evidence of the physical configuration of the transport system that connects Bogotá and Soacha, suggests that bypassing practices identified by Graham and Marvin (2001) are implemented in the Bogotá-Soacha conurbation, particularly in relation to Cazucá. This is supported by the limited travel capacity of citizens in Soacha and Cazucá, and the various degrees of disconnection between these and Bogotá despite high dependency from the opportunities in the city as shown in this chapter and Chapter 3. I also hypothesised that the splintering urbanism observed in relation to networks of services, public spaces and urban transport in Soacha has more severe consequences on the levels of participation in society for socially vulnerable populations, which are largely concentrated in Cazucá. The following chapter explores in detail such consequences through the examination of the different mobilities of people in Cazucá within a framework of transport-related social exclusion. I do so in the context of the differences in power, influence and fragmentation in transport networks developed throughout the thesis.

This chapter makes a contribution to academic debates regarding urban fragmentation and social and spatial segregation. The evidence collected and analysed under a framework of splintering urbanism shows that the principles outlined in chapter 2 are applicable to the case study of Soacha, being a potentially useful framework for the study of differentiated provision of infrastructure and services for transport in other urban settlements that are spatially segregated, informal or peripheral in Colombia and in other cities facing similar challenges to those of Bogotá-Soacha in the Global South. The use of evidence from commonplace data sources for transport and urban planning for testing the splintering urbanism framework is another contribution of this chapter to current debates. Although case study research is commonplace in the literature addressing the topic (i.e. Jaglin, 2008; Moss, 2008; Kooy & Bakker, 2008), this chapter makes a relevant connection with issues such as governance explored from the perspective of bypassed nodes (developed in chapter 6), which are often not included in literature on splintering urbanism. The chapter poses relevant questions regarding cumulative segregation and the role of informal development in reinforcing marginalised positions in the planning system and the physical networks of infrastructure.

8. Mobilities of the periphery: Informality, access and social exclusion in the urban fringe

This chapter intends to reflect on the consequences of splintering urbanism practices and transport networks on low-income peripheral populations in Soacha. This chapter confronts the framework for social exclusion described in chapter 2 with evidence from semi-structured interviews obtained in the field as described in Chapter 4. Data is used to structure the description of the localisation of social exclusion related to transport in Cazucá. In this regard, the seven dimensions described by Church, Frost and Sullivan (2000) are re-interpreted in the light of the data from the interviews and other relevant secondary information. The empirical contribution of this chapter is expressed not only in the spelling out of what different dimensions of social exclusion mean and how they are experienced and negotiated through different travel strategies, but also in the main categories identified as part of the content analysis, which are summarised in Figure 8.1. Travel strategies are interpreted in this context as the combination of physical, economic and social resources for gaining access to different types of means of mobility and thus opportunities.

As introduced in previous chapters, Soacha, as other cases analysed from the social exclusion perspective, presents acute conditions of low-income and segregation that limit access to the city vulnerable populations to access the city. Specifically, I focus on how different mechanisms to secure various types of mobility emerge in contexts of severe transport disadvantage where inadequate infrastructure and service provision accentuate social and economic dislocation. I emphasise on the bi-directional relationship between formal and informal transport mechanisms, exploring how community-led informal transport initiatives can play a role as means to reduce the risks of becoming socially excluded as introduced in the framework shown in section 2.6. The final part of the chapter

introduces a reflection on the conceptual and practical implications for transport provision in segregated communities, paving the way for the conclusion chapter that follows.

This part of the research is underpinned by emerging concerns with the social implications of transport that have led academics and practitioners to look at where the poor live and work and how they make use of transport. And it may provide additional evidence that can be used in the search for new solutions to integrate marginal areas with the rest of society (Dávila, 2013). While such efforts are relatively isolated and represent a small volume of current research on transport (Salon & Gulyani, 2010), they highlight the role of transport as a potential mechanism to change urban structures (Jones & Lucas, 2012). In Latin America, where only until relatively recently have governments rather timidly switched from favouring the use of the car to pursuing sustainable transport agendas benefitting the poor as a state policy (Cebollada & Avellaneda 2008), innovative methods of travel or alternative use of existing options may have an innate potential for strengthening current understandings of the challenges involved in reducing transport-related exclusion. These range from prominent investments on infrastructure-intensive projects like BRTs and aerial cable-cars as exemplified by different cities of Colombia (See Dávila, 2012; Bocarejo, Velásquez, & Galarza, 2014), to more modest but rather widespread informal paratransit serving lower-income and segregated demand for public transport throughout the Global South (Cervero, 2005). However, it is important to frame adequately the analysis of such mechanisms in order to avoid tendencies to either romanticize or underestimate their relevance and potential.

As argued earlier in this thesis, access to opportunities provided by cities is shaped by social position, economic conditions and power relations. Transport supply is instrumental in providing accessibility to different social groups, becoming a source of differences and inequalities in relation to

availability of transport systems and other relevant infrastructures for mobility (Urry, 2007). As argued earlier, transport is central to poverty alleviation. However, poverty is also a central constraint that limits access to transport not only in terms of affordability but also in lack of attractiveness for public investment in infrastructure and services as evidenced in Chapter 5. Social groups lacking assets and choice required for being able to move become deprived from fully participating in activities and society (Bauman, 2000). As shown in Chapter 2, increasing awareness of the social implications of mobility have led to an increasing number of works exploring links between transport, poverty, wellbeing and sustainability in the research agendas of human geography, transport studies and urban sociology (Hine, 2009; Jones & Lucas, 2012).

A relevant perspective identified in the literature in relation to the interaction between land use patterns, the transport system and individual characteristics and circumstances is transport disadvantage (Currie & Delbosc, 2010). Transport disadvantage is a multi-dimensional construct explored by different researchers which focus mostly on the effects of lack of transport and other external factors on individuals (Murray & Davis, 2001; Hurni, 2007). From this perspective, factors like choice of residential location, spatial distribution of opportunities and inadequate transport can lead to certain individuals becoming transport disadvantaged, which ultimately can lead to social inequalities and exclusion (Murray & Davis, 2001; Currie & Delbosc, 2010). Wixey et al. (2005) identify several factors related to 'transport exclusion' in the United Kingdom. These include six dimensions of which five are external to individuals: spatial, referring to excessively long journeys to access destinations; temporal, where people are unable to access locations they need at specific times; personal, which encompass individual concerns like safety and comfort as well as physical limitations; financial, referring mostly to prohibitive costs of travelling; environmental, where disproportionate exposure to externalities is present,

such as localised pollution and traffic casualties and fatalities; infrastructural, where transport infrastructure induces fragmentation and community severance by creating physical barriers as in the case of a highway dividing a neighbourhood; and institutional, which is produced by institutional arrangements and regulatory frameworks that may prevent certain groups from accessing transport. Most of these factors are evidenced throughout the research area, which suggest a certain degree of disadvantage that should be explored in order to better-understand travel strategies from residents of Cazucá. As argued by Lucas (2012), the combination of transport and social disadvantage can lead to 'transport poverty', which in turn exacerbates problems of (in)accessibility to opportunities, services and interactions that increase the risk of becoming socially excluded. While mechanisms of transport exclusion can be peripheral to non-transport mechanisms, the first can exacerbate the second (Hine & Mitchell, 2003). Thus it becomes necessary to reflect on the processes leading to social exclusion in the analysis of transport-related dynamics, identifying the role transport plays in alleviating or fostering social exclusion.

Previous chapters have examined the role Soacha and Bogotá play in the definition and redefinition of the peripheral condition of Cazucá. These conditions have negative implications on the social, spatial and economic dynamics governing travel practices of residents in informal neighbourhoods of Soacha, who risk becoming more socially excluded than they already are. This chapter is aligned with international research exploring links between transport and social exclusion in low-income neighbourhoods and areas where high deprivation and vulnerability result in the disconnection of particular groups from the opportunities of modern society (Hine, 2009).

8.1 Peripheries, transport-related social exclusion and informality

As discussed in Chapter 3, large cities in Latin America experienced accelerated urban growth particularly during the 1960s and 1970s, with tendencies to employment concentration and spatial segregation of low-income and unskilled in-migrants (Cohen, 2004). The uncontrolled and unplanned growth of, in many cases, ad-hoc metropolitan areas, led to serious problems of social exclusion, degradation and lack of basic infrastructure in emerging settlements of low-cost housing (Gilbert, 1997). Such dynamics restricted accessibility from peripheral and often informal settlements, affecting disproportionately under-privileged groups.

It is relevant to rapidly revisit the historical deficits in urban infrastructure, which are intensified under conditions of rapid urban development and frame the dynamics and strategies examined in this chapter. Spatial concentration of resources and opportunities pulls infrastructure development towards clusters of power and attractiveness (Cervero, 2000; Graham & Marvin, 2000) as evidenced in the analysis of splintering urbanism in the case study (see Chapter 6). Principles of utility maximisation driving transport and infrastructure provision lead to precarious coverage of roads, utilities and basic social services in 'less-profitable' areas of the city (Brand, 2013), reducing considerably access from marginal populations to adequate living standards. These conditions feed upon a continuous cycle of social exclusion, class segregation, and poverty that reshape city boundaries through informal settlements in the peripheries (Gilbert, 2009; Cervero, 2013a). As a consequence, forms of mobility of peripheral populations differ greatly from those living in more attractive and better-served areas of the city, as a result of imposed gaps of connectivity (Gakenheimer, 1999; Oviedo & Dávila, 2013).

Lack of adequate connectivity imposes high financial loads on poor households, especially in areas where integrated transport systems are not available, increasing transfer costs to reach the core city (Cervero 1998, 2000). In most cases the demand in peripheral areas is not fully covered by the formal system, opening gaps for the operation of small-scale informal operators and leading to a complex interplay of formal and informal transport alternatives in the definition of travel choices (Cervero & Golub, 2007). However, informal mechanisms have a limited effect in giving poor families access to the opportunities in large cities and generally entail higher externalities than the formal supply (Avellaneda, 2008; Cebollada & Avellaneda, 2008; Cervero, 2013a).

Access presents itself as the overarching concept governing these dynamics. Access becomes an instrument to operationalize travel strategies aiming to reach essential opportunities and understanding the influence of intrinsic and external conditions over different social groups (Urry, 2007). People in poverty often face conditions beyond the economic realm like adverse topography, violence, crime and other elements that hinder movement and accessibility (Brand & Dávila, 2011). In Colombia, the three largest cities concentrate many of their poorest citizens in hilly areas of difficult access, mostly disconnected from urban infrastructure and marked by complex social dynamics of violence, crime and segregation (Dávila, 2013). By and large, the majority of location patterns of the urban poor in countries of the Global South leads to a limited capacity for travel and to an increase of social, spatial and economic inequalities (Ferrarazzo & Arauz 2000; Vasconcellos 2001; Kaltheier 2002; Salon & Gulyani, 2010).

It has become widely accepted in the literature that lack of sufficient access to essential opportunities, goods, services, and social interactions, can shorten the path that leads to social exclusion (Burchardt et al., 1999; Church, Frost, & Sullivan, 2000; Lucas, Grosvenor, & Simpson, 2001; Social Exclusion Unit, 2003; Grieco, 2006; Currie, & Stanley, 2007). Lucas

(2011a) argues that social exclusion relates to the social consequences of lack of adequate access to transport and thus opportunities, allowing to differentiate between constraints related to the individual and those related to the supply. Very prominently in one of the most recurrent references in the literature concerned with transport-related social exclusion, as shown in Chapter 2, Church, Frost, & Sullivan (2000) identify seven dimensions in which social exclusion relates to transport. Such dimensions are physical, geographical, from facilities, economic, time-based, fear-based, and spatial exclusion. The first dimension, physical exclusion, refers to conditions where physical barriers inhibit accessibility of services; geographical exclusion relates to poor transport provision and inconvenient locations in relation to centres of opportunities like the urban fringe; exclusion from facilities, refers to distance from facilities in relation to people's homes; economic exclusion takes place when high monetary or temporal costs of travel limit access to facilities or jobs; time-based exclusion is related to demands on time that restrict time availability for travel; fear-based exclusion takes place when worry and fear limit the use of public spaces and transport, particularly by vulnerable groups; and space exclusion speaks of security and space management strategies that can deprive people from using transport and public spaces (Church, Frost, & Sullivan, 2000) (See Chapter 2 for a more detailed definition of each dimension).

These categories are useful for framing conditions that lead to limited access to opportunities and thus abridge the path to social exclusion of vulnerable populations. While, as argued in Chapter 2, some categories can overlap, particularly under severe circumstances of deprivation, they provide initial criteria to deconstruct how travel strategies respond to conditions of transport and social disadvantage in cases like Soacha. In addition, they allow an examination of the role of non-conventional strategies in gaining access and reducing the risk of becoming socially excluded. In this context, informal transport that produces analogous

networks serving different types of demand can be considered as an active part of the relationship between lack of assets and poor transport provision. And in this regard, being may become a potential mechanism for overcoming some of the barriers to access opportunities faced by low-income populations.

Current understanding of informal transport in the Global South ranges from hand-pushed rickshaws to mini-buses that step in to fill gaps left by limited formal transport provision (Cervero, 2013a). People in low-income neighbourhoods often rely on informal transport based on small vehicles that can access difficult areas or provide non-motorized alternatives either at lower cost or with better coverage than conventional public transport (Cervero, 2013a). However, informality in this context will be explored in a wider sense, being interpreted as a logic of organization that reform practices, norms and rules leading to urban transformations (Roy & AlSayyad, 2004). More flexible and adaptive methods for traveling in these areas are constantly emerging as a response to the priorities of urban and peri-urban populations in conditions of poverty, and these may respond better to commonly accepted dimensions of social exclusion than what has been accounted for. An exploration of the social dimensions of informal transport in the Global South is still largely absent in the international literature and thus, an analysis of the role of these alternatives in addressing social exclusion can contribute to the development of theoretical and empirical understanding of travel strategies in poor communities.

The objective of the research is to link the conditions and processes related to planning and fragmentation of transport networks with transport-related social exclusion as experienced and addressed by the poor in the periphery of Soacha. Previous chapters have addressed the spatial and physical structure of the Bogotá-Soacha conurbation (Chapters 3 and 7), and the governance and formal and informal practices of transport and urban

planning (Chapter 5 and 6) which reconfigure the availability and nature of transport networks, producing splintering urbanism (as discussed in Chapter 7). The following section builds on the multidimensional and multi-scalar understanding of social exclusion to explore its meaning and influence on the daily mobility strategies of the people in Cazucá, highlighting systematic inequities that underpin household and individual strategies for addressing the different dimensions of social exclusion.

8.2 Travel strategies and social exclusion – a qualitative analysis

Information obtained on the conditions for access and urban development in Soacha set up the context for the analysis of travel strategies in Cazucá. In relation to social exclusion, evidence from an external perspective points toward the existence of at least three of the dimensions identified by Church, Frost and Sullivan (2000). These include geographical exclusion, exclusion from facilities, and economic exclusion, all resulting from location and development patterns of the studied neighbourhoods and precarious supply of transport infrastructure and services that raise both the cost of living and limit considerably affordability of transport. These dimensions are a good starting point for the analysis of geographic, urban economic and social aspects of the mobility of residents of Cazucá. However, the seven dimensions identified in the literature are thoroughly explored in this section. Table 8.1 summarises the main characteristics of the resident interviews in selected in the neighbourhoods described in Chapter 4, showing the profile of the interviewees based on their socio-demographics.

Table 8.1 Characterisation of the interviews

Resident interviews		n = 67
Neighbourhood	Santo Domingo	10

	Caracolí	6
	El Oasis	6
	El Tanque	7
	Julio Rincón	6
	La Isla	7
	Bella Vista	9
	Ciudadela Sucre	10
	Villa Mercedes	6
Gender	F	46%
	M	54%
Age group	F	
	16–25	26%
	26–35	22%
	36–45	20%
	46–54	20%
	55+	13%
	M	
	16–25	37%
	26–35	17%
	36–45	19%
Place of birth	46–54	13%
	55+	13%
	Bogotá	28%
	Soacha	14%
Relationship with head of the household	Other municipality	58%
	Head	65%
	Partner	12%
	Descendant	19%
Level of education	Other relationship	4%
	None	6%
	Primary	24%
	Secondary	52%
	Technical	13%
	Undergraduate	4%
Main activity	Postgraduate	1%
	Unemployed/retiree	9%
	Work	57%
	Study	13%
	Home-maker	21%

Source: Own elaboration

The transcripts (or notes where transcripts were not available) were broken down using sentences as the basic unit of analysis. Each unit (sentence) was assigned a tag according to the dominant dimension that applied to it (see example in Appendix B-4). A second iteration then identified sub-

themes related to each of the dimensions. Successive iterations identified every more precise (narrow) sub-themes. Figure 8.1 shows the final iteration of the coding system, which allowed us to identify the most relevant sub-themes for the analysis. The iterations were stopped when redundant categories were found in most of the initial dimensions. Excluding the seven dimensions, this final coding system allowed us to identify 76 sub-themes that were relevant for understanding the relationship between transport and social exclusion in Soacha.

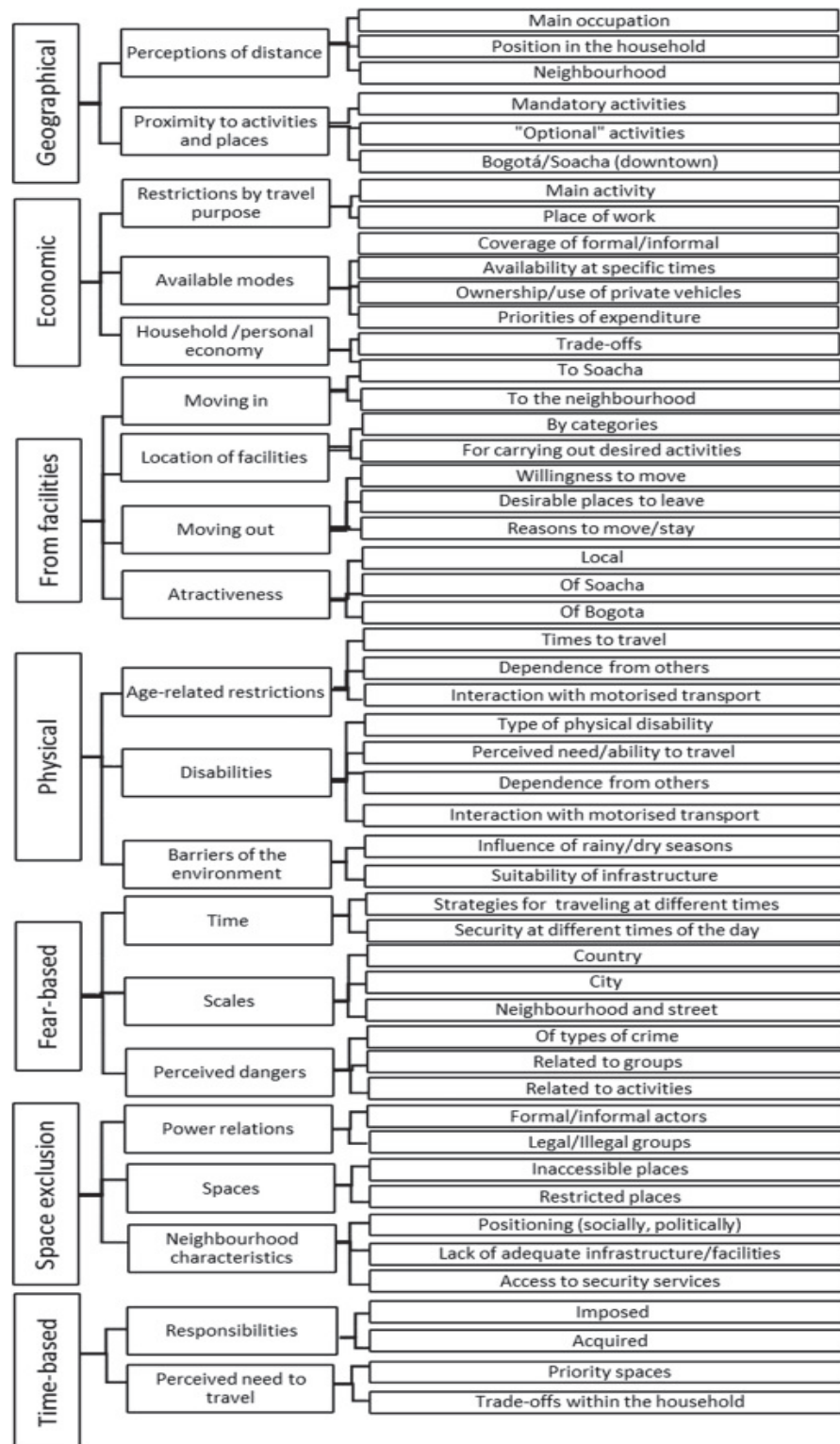


Figure 8.1 Main sub-themes identified in the coding system for qualitative content analysis of the interviews

Source: Own elaboration

This section discusses the results from the qualitative content analysis, grouped by the top level themes – the seven dimensions of travel-related social exclusion identified by Church, Frost, & Sullivan (2000).

8.2.1. Geographical exclusion – “This is a superb location”

Geographical separation from relevant destinations, determined by housing location, urban form and infrastructure is one of the most straightforward proxies of impedance for accessibility and is identified as a potential factor of transport disadvantage and exclusion in the literature (Morgan, 1992; Dodson, Gleeson, & Sipe, 2004; Lucas, 2004; Wixey et al., 2005). From the structure of the city-region, the transport network, and the location of Cazucá within Soacha, shown in Chapters 3 and 7, it appears neighbourhoods in Cazucá are indeed in an inconvenient location in relation to centres of employment, but also in relation to education, health and leisure facilities as it will be explored in a later dimension. Evidence in Chapter 7 suggests that Cazucá is a segregated node in the networks of connections and opportunities in the Bogotá-Soacha conurbation. However, the aggregated perception of the interviewees suggests that they perceive their location as convenient, even privileged. Statements of the like of “this is a superb location”, “we have all we need close by”, or “it is easy to go anywhere from here” were commonplace amongst the interviewees when enquired specifically about their geographical position. While there is a widespread acceptance of transport provision being limited and of poor quality, interviewees believe that in comparison with other areas of low-cost housing in the region, Cazucá provides them with sufficient access at very low housing expenses. According to information from Departamento Administrativo Nacional de Estadística (2005), average land prices per built-up m² of residential land in Soacha was COP 495,000 (US\$ 213), while in areas of stratum 1 in southern Bogotá such as Bosa, El Tintal, and Kennedy, the prices were COP 506.000 (US\$218), COP 582,000 (US\$ 250), and COP 650,000 (US\$ 280), respectively. Moreover,

according to the self-assessment of local leaders in Cazucá, housing prices in the area can be between 20 and 30% lower compared to the rest of Soacha (F, 54, LL; M, 62, LL). According to an interviewee at Soacha's Land-use and Planning Secretariat, there are no formal studies available regarding housing prices in Cazucá (M, 32, CS, MA).

The position of different interviewees within their own homes and neighbourhoods, however, influences greatly perceptions of the geographical, economic and physical (referring to the topography and urban layout) advantages and obstacles of the neighbourhoods. These positions thus determine to a great extent what travel strategies people choose to overcome barriers associated with social exclusion. This suggests that some dimensions of social exclusion are not only imposed by external environments. They also depend on their condition as individuals, and as part of social groups, which entails trade-offs within households and other social units that in turn are shaped by multiple and complex relations.

Interviews suggest that work is a primary factor in defining the lives and mobilities of people in these marginal settlements. 60% of interviewees identify working as their main occupation, which in turn demands most of their daily time (adding up travel time to work) during weekdays. The geographical distribution of activities identified in Figure 8.2 shows that despite living in Soacha, many people in the area depend on Bogotá for work and study. This is coherent with official statistics and suggest issues of local accessibility and availability of opportunities in Soacha.

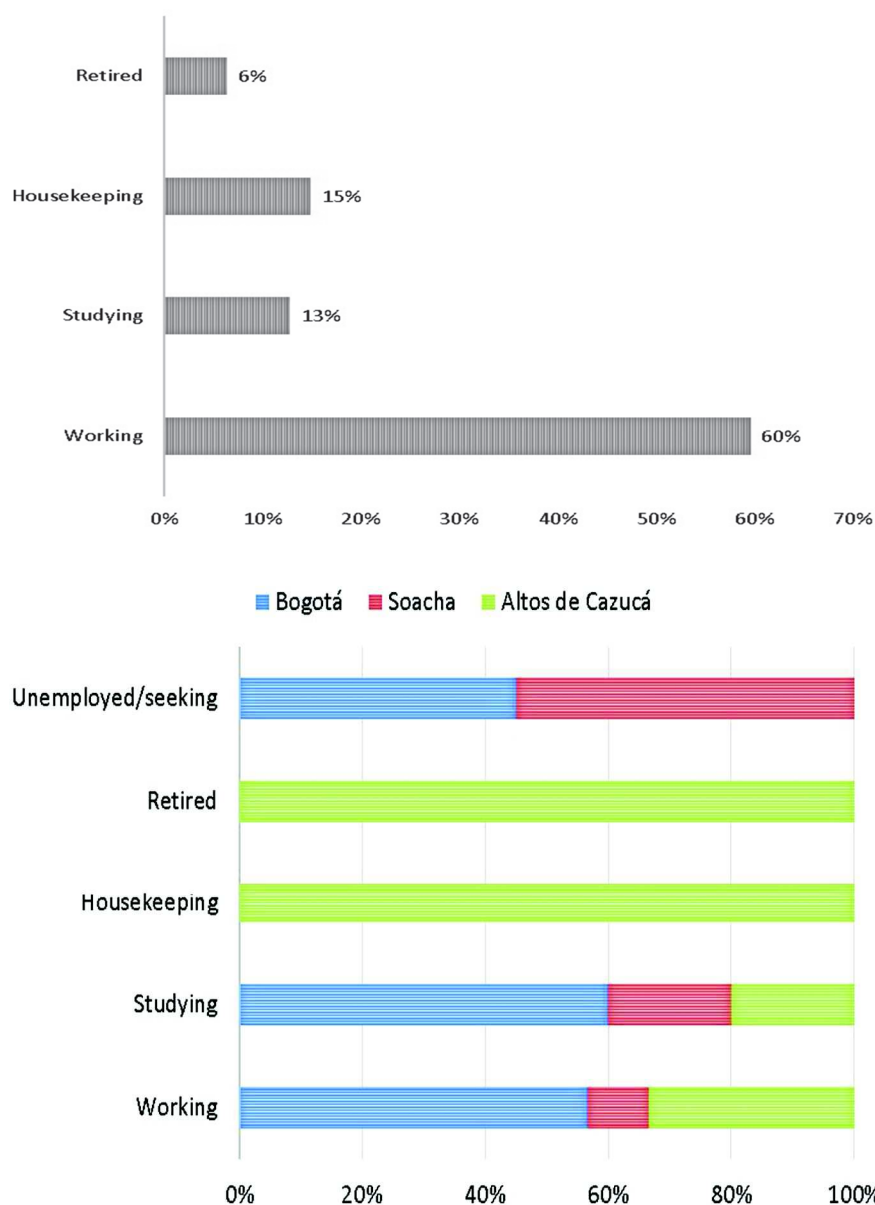


Figure 8.2 Main activity* of the interviewees and location of activity

Source: Own elaboration

* Defined as the activity of the interviewees' occupation in the previous month

Residents of the area show marked separations between home and work. However, nearly 30% of residents in the sample who declare their main occupation as working carry out economic activities within the area of Cazuc . Identified cases of local employment respond to local demand for goods and services while redefining their own needs for mobility. Local

employment is related to retail shops, and local services like tailoring, electric repairs, housing improvements and maintenance (i.e. construction, house repairs, plumbing, etc.), and support to NGOs and communal action boards. Local businesses can be based in dedicated spaces, on demand⁵², or simply identified by small signs on doors and windows of houses. These cases show interesting dynamics of limited mobility that both reduces household costs related to transport while simultaneously increasing attractiveness of the area and availability of local facilities.

Analysis of the perception of Cazucá as a convenient location shows a marked difference between people who work and people who do not, which links to distribution of responsibilities and definitions of roles within households. Interviewees were asked about their own travel patterns and their perception of the travel patterns of other members in the household. Particularly, a question was included about the priorities in transport expenditure in the household. Generally, the head of the household is identified as the most mobile member of the family, both when the head was interviewed and when other members of the household responded to the interview. Local leaders seem to be an exception in terms of mobility outside of the area, although they do not stay at home very often either. Income-earners⁵³, both women and men, agree that there is a set of available transport alternatives for reaching both Bogotá and other areas of Soacha, and that it is relatively simple to find a way to reach their places of employment. Interviewees argue that although Cazucá is far from where they work, the routes available allow them to reach almost any place to work in Bogotá, within one or two transfers. Supply of public transport is

⁵² Interviewees involved in construction and repairs argued that they attend calls for work across the area of study and in some other neighbourhoods in Soacha. However, most of their time is spent within Cazucá

⁵³ Employees, independent workers, business owners and informal workers

higher in the mornings, when most people go work, although it does not remain constant throughout the day. According to some interviewees, during mornings “we can find transport to get to Bogotá” (M, 33, La Isla); “there are three or four services available to reach the buses to go to work” (F, 28, Bella Vista). However, the limited availability of infrastructure for public transport operation leads to slower speeds and lower frequencies. Interviewees argued that the time elapsed between public transport vehicles is high and there is no reliability. In the words of an interviewee: “the problem is not that there are no public transport routes, but there are not many buses, so you have to leave home early and ready for a queue that can take up to 45 minutes to board the bus” (M, 21, Los Robles).

From the perspective of the definition of geographical exclusion by Church et al (2000), Cazucá can be categorised as a geographically excluded área because of the long travel distances and poor provision of public transport. Field measures between 6 AM and 9 AM in two local ‘bus hubs’ and El Oasis, revealed frequencies of 3-4 buses/hour (one bus every 18 minutes approximately), and 6-7 informal services/hour (one vehicle every 9 minutes approximately). However, due to the restricted capacity of each individual vehicle, people had to wait between 30 and 50 minutes for a vehicle with sufficient space. Seating capacity of formal public transport vehicles is between 22 and 38 passengers, although from field observations I estimate that larger available buses can carry up to 20 additional passengers standing. In informal transport, due to the variable size of the vehicles (they operate between 5-seat sedans and 15-seat pickup trucks), the number of passengers can vary significantly. Nevertheless, as shown in figure 8.3, a similar situation is observed in most public transport services going from Soacha to Bogotá during morning peak times. According to data from Transmilenio on passenger count stations near the boundary with Bogotá on the southern highway, some public transport vehicles transport almost 20% more passengers than their

intended capacity (standing and seating). This reveals a generalised insufficiency of supply in the municipality, contributing to the comparative perception of residents of Cazucá of their location.

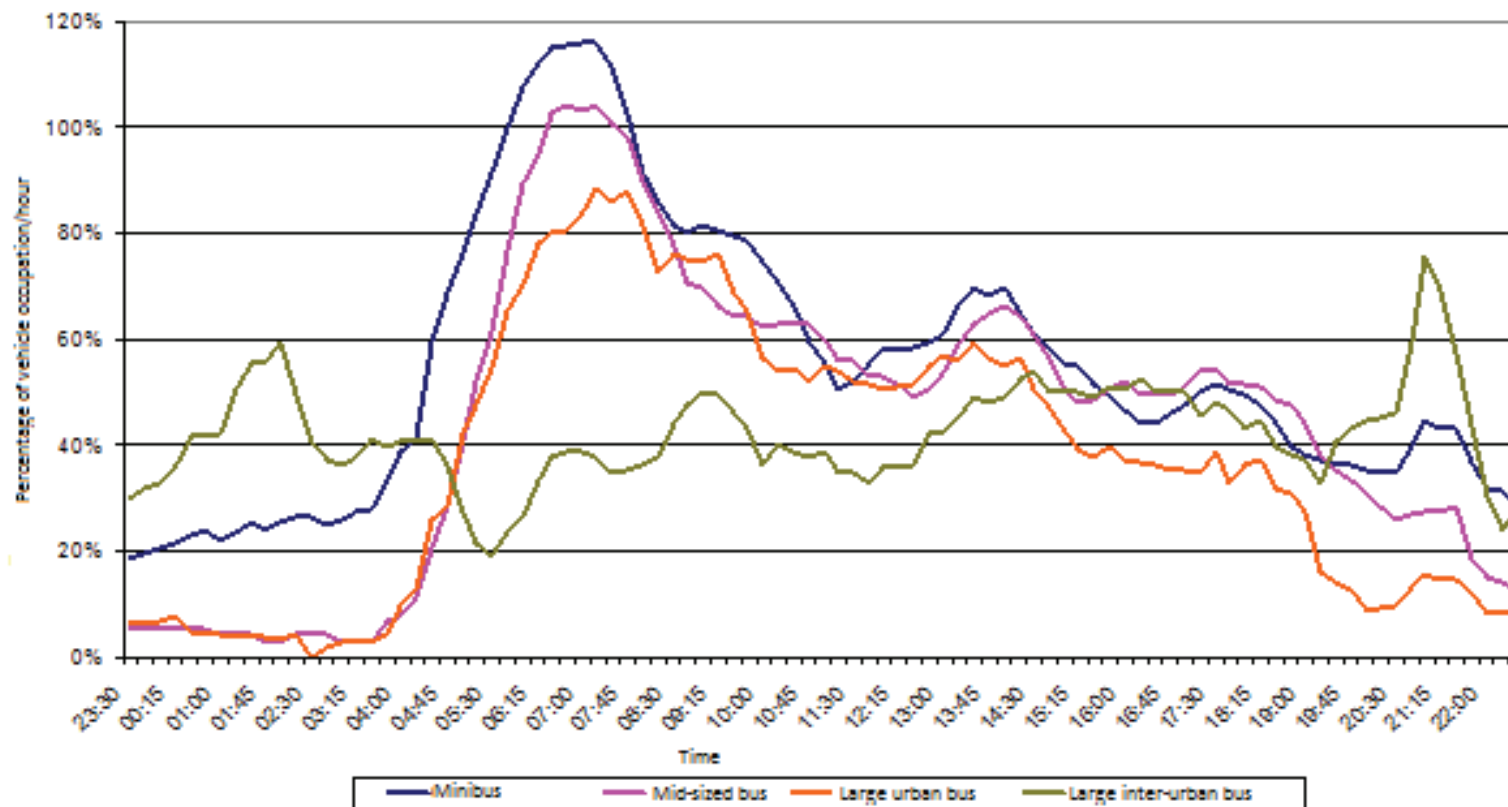


Figure 8.3 Vehicle occupancy as percentage of baseline capacity* in the direction Soacha-Bogotá - 2009

Source: Own elaboration based on Transmilenio (2009)

*Baseline capacity of vehicles (standing + seating): Minibus: 25; Mid-sized bus: 45; Large bus: 60

Despite poor availability of transport supply, interviewees' perceptions about their location did not vary significantly between neighbourhoods. In addition, when people were given the hypothetical chance to live in a different location 68% of interviewees argued they would stay in Cazucá. Interviewees willing to change housing location pointed at neighbourhoods adjacent to the highway or across the boundary as desirable places. In particular, people that do not work and have more sporadic or erratic patterns of displacement believe that they would have better access if re-located closer to the centre of Soacha or in Bogotá, although they conduct mainly local trips. One of the central questions in the interview was if people perceived that there were areas of the city-region that were too far or difficult to access from their homes. From a geographical perspective, people did not feel that there were particular areas that they could not reach due to distance. However, it was widely stressed that reaching northern areas of Bogotá (the wealthier neighbourhoods) and other municipalities is overall too costly. In other words, "if it is about arriving, you will arrive. How much it costs you is a different question" (M, 32, Santo Domingo).

8.2.2. Economic exclusion – "Transport takes too long, but we cannot stop working"

People in Cazucá differ in their patterns of travel for work trips and other purposes from the rest of Soacha as depicted in Origin-Destination surveys and other aggregated studies. Limited availability of road corridors for circulation of public transport reduce choices to overcome geographical and physical constraints to access. Interviewees make trade-offs within their households for maximising their limited income, but transport becomes unavoidable because income-earning activities is unavoidable. Although household priorities are focused on reducing travel expenditure as much as possible, priority is given to maintain any available source of income. In this context, parallel transport services become a potential

instrument to access the city and thus help dampen the factors leading to exclusion of people on lower incomes.

An analysis of the sample shows that amongst those that work outside of the neighbourhoods, men are mostly involved in construction activities, private security, or work in large-scale wholesale fruit and vegetable markets, while women work primarily in house cleaning services and other domestic work. In both cases, there is a high incidence of informal work, without fixed contract durations and variable schedules and remuneration. This reflects an additional dimension that adds to the complexity of mobility from informal settlements. Construction and domestic work alike require employees to constantly shift locations for daily work, which represents a challenge for mobility due to lack of a sufficiently integrated public transport system with fare integration. Corabastos, the largest wholesale fruit and vegetable market in Bogotá, located in the south-west of the city, is not served by Bogotá's BRT, Transmilenio, and has a limited supply of public transport directly from Soacha.

Dominant forms of mobility in the area are walking and public transport, both formal and informal. Given steep slopes and poor conditions of local roads, the bicycle is not an attractive mode of transport and walking becomes a burden that needs to be faced whenever there is not enough money for local transport. Three cases in the sample had access to a motorcycle, which according to their perception was the fastest and cheapest mode of transport from the area. Average travel times reported on this mode were between 30 and 45 minutes and mean cost was 0.7 US\$ per day. In 7 of the 9 areas studied, informal transport alternatives prevail locally in the selection of transport modes. Moreover, despite the high degree of spatial concentration of opportunities in the region, most workers interviewed travel shorter times in comparison with people of similar socioeconomic conditions within Bogotá when including informal alternatives in their travel strategies as described in Bogotá's Origin-

Destination surveys. The average daily travel time of socioeconomic stratum 1 in Bogotá (see definition of socio-economic stratification in Chapter 4) is 77.2 minutes (Secretaría de Movilidad de Bogotá, 2011), while the average travel time of users of informal transport in the sample, although not statistically representative of the study area, is below 65 minutes.

Church, Frost, & Sullivan (2000), argue that economic exclusion is related with limited availability of economic resources to travel, sufficient available supply of affordable transport, and long distances to centres of opportunities that may make transport too costly. The consequences of such type of exclusion are the limited participation in certain activities, long walking times and the reduction of disposable income for investing in other normal activities of society. In Cazucá, such consequences are distributed among different members of the household, often affecting more severely those at higher social disadvantage, even in a context of high poverty. There is a marked willingness to sacrifice time in order to reduce transport expenditure, which may lead to 'time poverty' as introduced in Chapter 2, particularly from people working outside Soacha. Time is an issue and it is acknowledged that trips, even locally, involve long times of displacement. However, as pictured by interviewees from all neighbourhoods, "although transport takes too long, we cannot stop working" (M, 48, Villa Mercedes); "is what we knew we would have to accept when we decided to move here" (F, 53, La Isla); and "it is better than not being able to go anywhere" (M, 24, El Oasis). The average travel time to work, depending on the combination of alternatives, can oscillate between 40 and 130 minutes, having longer times in 'inner' neighbourhoods like La Isla, El Oasis and Villa Mercedes, which are farther from both the border with Bogotá and the highway in Soacha. People in neighbourhoods with no direct coverage of public transport routes preferred to walk to bus stops serving direct bus services to their destinations instead of using informal services. These

neighbourhoods, Caracolí and Potosí, are in closer proximity to Bogotá, which was perceived as an advantage by the residents of the neighbourhoods, and marked some distance in the attitude of residents toward informal alternatives.

People in peripheral settlements are constrained by low incomes and poverty, of which may lead to economic exclusion. According to the database of Sisbén⁵⁴ for Soacha (Sisbén, 2013), out 360,000 people in the database for the municipality (16% of the total population registered in Cundinamarca province), 37% belong to level 1 (see footnote), of which 54% live in Cazucá. This figure suggests that most severely socially disadvantaged population, including the poorest, live in Cazucá.

A question aimed at identifying the main role of each member of the household from the perspective of the interviewees was included in the semi-structure schedule I collected. According to the responses to this question, there is a high degree of unemployment and in 73% of the cases only one member of the household is at work according to the interviewees. Furthermore, the average household income was estimated between COP 560,000 (US\$ 300) and COP 747,600 (US\$400) per month, very close to the legal minimum wage in the country of COP 589,500 (US\$315) in 2013. Trade-offs within the households constrain considerably the 'bag of resources' available for purposes other than work and, in some cases, higher education. As a consequence, weaker members of the household like women and the elderly, which as a consequence of restricted physical capacity to work, household responsibilities or social conventions do not work or are not receiving education, become particularly vulnerable to immobility. In this regard, interviewees acknowledge that aside from formal

⁵⁴ This is the national system for identification of potential beneficiaries for social aid programmes. It is divided in three levels, where level 1 represents people with high social disadvantages and severe multidimensional poverty, level 2 people with unsatisfied needs close to the economic poverty line, and level 3 people at risk of falling into poverty (Sisbén, 2013).

public transport, there is a set of informal transport alternatives managed by people from the community and operated mostly by residents from within the area. This attaches a sense of familiarity to some of the available transport alternatives, opening spaces for informal transactions between demand and supply that can assuage some of the financial burdens of travelling.

Different types of informality in transport were identified from the interviews. Not only is there informal supply comprised of small pickup trucks, cycle-taxis⁵⁵ and old cars used as shared cabs, all addressed locally as *carritos*⁵⁶. But there are also different 'informal' rules and transactions that allow people to increase their benefit from such forms of existing public transport or at least reduce its cost. These, according to interviews with both users and providers of informal and formal transport include fare negotiation, special schedules, differentiated fare schemes and additional services. A detailed analysis of organizational and operational characteristics of informal supply would merit a dedicated piece of research. However, some elements from informal service schemes become relevant for analysing travel strategies as the informal supply is organised within the neighbourhoods. Informal transport provides services mostly for local access, providing connections to main bus stops for formal routes in Bogotá and Soacha, including Transmilenio. Some specific services go specifically to Corabastos, not only providing access for local workers but also for residents that can buy their groceries at lower prices in this wholesale market. Moreover, the informal transport does not directly compete with formal services in the area, sharing only one of the three main routes identified for local mobility with formal transport. These conditions allow people to have more flexibility when interacting with transport providers,

⁵⁵ *Bicycle-based rickshaws*

⁵⁶ *Spanish for 'little cars'*

and this flexibility often results in highly personalised relations that help them address specific needs otherwise not possible to meet. Resistance to Transmilenio among respondents is commonplace. Qualitative data shows that this is due to the higher complexity and greater levels of control by the system (Diaz & Hinebaugh, 2009; Hidalgo et al., 2013). While most complaints about formal transport are about price and quality, the general perception is that the system is not affordable to local residents. When examining the ways in which people use public transport provided locally, this tendency becomes clearer.

Informal transactions in all available systems allow for higher affordability in the usage of transport alternatives. People haggle for the price of both the *carritos* and formal transport, particularly if they are travelling in groups. The practice of negotiating prices was routine in areas with and without service of *carritos*, allowing users from all neighbourhoods to reduce their transport costs. Considering that tariffs for regular buses are 0.7 US\$, for Transmilenio 0.92 US\$ and for informal services between 0.42 and 0.53 US\$, the informal approach can represent a reduction of between 30 and 40% of the official fare for each mode. This allows some users to avoid long walking distances and travel times depending on the destination, though respondents acknowledge that these are not always effective, particularly when vehicles are already too full. In addition, it is recognised that informal transport is more prone to road accidents, especially during the rainy season (when demand is higher), and sometimes it is uncomfortable because some vehicles do lack seats or these are damaged.

People combine differently their use of motorised modes and walking depending on the purpose and frequency of the trips, maximising speed for obligations like going to work and study; comfort for transporting packages and medical care; and affordability for trips without fixed times for arrival, like local amenities and recreation. 60% of the sample reported use of informal transport at least twice per week. In cases of longer distances that

involve more than one transfer, usually for additional trips within Bogotá, users tend to avoid local transport alternatives and walk to the mode that takes them closest to their long-distance destination. People combine their limited resources for transport through these strategies without reducing the number of displacements they consider essential. Time, energy, comfort and even security are traded-off for fare costs “(...) depending on how you feel your pocket” (M, 21, Potosí); and the existence of alternative ways to access motorised transport when needed becomes an essential asset that “(...) allows to spend less and helps with the economy without having to risk ourselves or stay all day in the neighbourhood” (F, 35, Ciudadela Sucre).

8.2.3. Exclusion from facilities – “There are things in Soacha but we depend on Bogotá”

Access to opportunities other than employment is more straightforwardly constrained by availability of local facilities. However, the analysis of this dimension encompasses all types of activities, particularly social interactions, as these are a fundamental part of the notion of social exclusion. Women not at work are restricted by the composition of the household, and are linked with the mobility and access of children and elderly that either require constant care or accompanying. More complex social dynamics beyond the scope of this research play a role in the definition of these roles and positions within the household. However, it is clear that in most cases there is a gender imbalance in terms of the purpose of travel and capacity for doing so. Medical care and household-related errands are important travel motives that depend directly on the availability of local facilities and yet these are mostly located outside of the area. In the case of children, considering the supply availability of local schools, especially primary education, when enquired about the schooling situation of children in the households where there were members between 5 and 18 years

(72% of the sample), 79% were reported to be enrolled in and attending a school either in Soacha or Cazucá.

People bounded to local mobility by social, economic or physical conditions are at a higher risk of becoming socially excluded if there is no adequate supply of essential opportunities and interactions (Kenyon, Lyons, & Rafferty, 2002). Respondents were asked about the locations where they seek to address different types of needs (i.e. medical services, visits to family) seeking to identify patterns of local accessibility. It was observed that some opportunities are easily available in the area. In particular, the ways in which neighbourhoods were developed reflect clearly the role of social networks in defining mobilities and location decisions. Nearly a third of sample respondents acknowledge to have close relatives and friends in their own or a close neighbourhood in the area, and that family members played a role in them moving to Cazucá or vice versa. Religious services, local shops and basic education are locally available for most of the sample. However, certain opportunities have higher presence in Bogotá, including essential social interactions. This shows that although the area may be less prone to exclusion from certain facilities, many essential services need higher investments in transport to be reached by a good portion of the interviewees. Table 8.2 summarises the geographic availability of different opportunities as identified by respondents.

*Table 8.2 Geographic location of facilities and services according to respondents**

Type of facility/opportunity	Region		Municipality	Local	Total
	Bogotá	Other municipality	Soacha	Altos de Cazucá	
Medical care	29.60%	0.00%	51.90%	18.50%	100%
Local shop	13.60%	0.00%	39.50%	46.90%	100%
Food store	46.90%	1.20%	33.30%	18.50%	100%
Primary school	16.00%	0.00%	34.60%	49.40%	100%
Secondary school	24.70%	0.00%	35.80%	39.50%	100%
Higher education	51.90%	14.80%	28.40%	4.90%	100%
Police station	17.30%	0.00%	58.00%	24.70%	100%
Church	3.70%	2.50%	28.40%	65.40%	100%
Family/friends	34.60%	7.30%	27.20%	30.90%	100%

Sports/leisure	19.80%	3.70%	67.90%	8.60%	100%
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Source: Own elaboration

*Includes local leaders

One of the main issues related to exclusion from facilities is that places for leisure and social interactions are not fully available in the area or within a reasonable distance. This is a two-sided issue according to people that do not travel often out of their vicinity. On the one hand, there is not much to do in the neighbourhoods, which adds up to dynamics of crime and insecurity that prevent people from leaving their homes if they do not feel it necessary. And on the other, it makes the area unattractive and reduces inbound travel from other areas of the city. ‘People do not come here, why would they want to?’ (F, 54, LL). Going to leisure areas or even visiting relatives becomes an excuse for going further from home and “see other things and people when we can, because here it is always the same” (F, 22, Villa Mercedes). Most people staying at home during the week lacked relatives in the area, and in these cases family and friends did not visit interviewees at home because of perceptions of insecurity and lack of access. In this regard, despite having different travel mechanisms for accessing different neighbourhoods, access is limited to a one-way practice restricted by lack of attractiveness and social tensions that influence external perceptions. This increases the social exclusion of people forced to stay in the neighbourhoods as there are no additional interactions with people willing to visit their area of residence.

Women of all ages are more susceptible to be in a situation where they have to be at home most of the time. 13 cases of near-immobile individuals were identified in the sample of 69. Of these, 7 were women that stayed at home most days during the week or that only went out to accompany children to school or other very sporadic activities as medical or family emergencies. Local mobility for acquiring essential daily goods and services was identified as something regular, but respondents did not attach any sense of belonging and inclusion to it. When asked about their

interactions with neighbours, it was found that social contact is very limited and that residents are often unaware of neighbours in the same situation, despite this being an apparently common situation. Lack of attractiveness at the local scale adds to limited availability of resources for travel and perceptions of inadequate conditions for local mobility that lead many people to become socially excluded despite mechanisms for travelling out of the area.

8.2.4. Physical exclusion – “What would we do without the carritos?”

The conceptual framework for social exclusion defined by Church, Frost, & Sullivan (2000) identifies physical exclusion to be closely related to the conditions of the built environment and characteristics of the transport system that can act as inhibitors for accessibility. These tend to affect differently particular social groups as a result of physical and psychological limitations, affecting particularly small children, the elderly and people with impaired mobility, people with language and communication limitations and the visually and hearing impaired among others (Church, Frost, & Sullivan, 2000). Subsequent research has stressed the vulnerability of these particular groups to transport disadvantage and exclusion (Murray & Davis, 2001; Clifton & Lucas, 2004; Dodson, Gleeson, & Sipe, 2004; Wixey et al., 2005; Mackett, Achuthan, & Titheridge, 2008) for which the analysis of this dimension focuses more on this type of individuals in the sample. People with physical limitations are practically forced to immobility. The dimensions discussed in the preceding sub-sections of this chapter seem to add up with each other to impose external obstacles to people already individually constrained. This produces different degrees of limited access, or exclusion, that relate not only to physical limitations, but also to intellectual and social conditions that are intrinsic to many residents of Cazucá.

Data from Sisbén (2013) for Soacha shows that 7,023 people in the database (2.2%) have at least one type of physical or cognitive disability.

Analysis of this data for Comuna 4 (Cazucá) shows that there are 1,043 people with at least one disability in the area, which represent 14.7% of the people with disabilities in conditions of poverty or risk of falling into poverty in Soacha. Figure 8.4 shows the distribution of people with disabilities in the Sisbén database by type of disability in Cazucá. As shown in the figure, Sisbén's classification of disability is closely linked with the ability and autonomy of individuals to move on their own, which according to Church, Frost, & Sullivan's (2000) definition of dimensions of social exclusion, is a constraint for the normal participation of these populations in normal society. People in this classification in Cazucá are mostly over 55 years (72%) and there is a high incidence of men with disabilities (56%) (Sisbén, 2013).

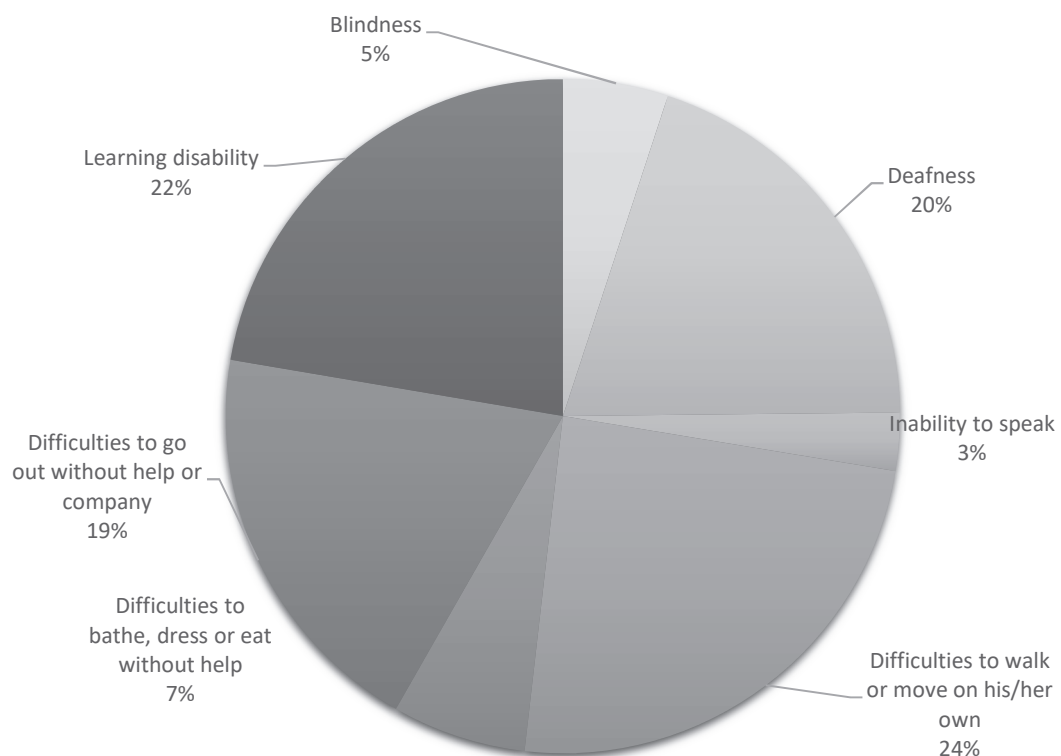


Figure 8.4 Distribution of people in the Sisbén database in Cazucá by type of disability* - 2013

Source: Own elaboration based on Sisbén (2013)

*According to the categories used by Sisbén

The semi-structured interview sample of households in Cazucá included 6 respondents over 55 years and a wheelchair user located in the neighbourhoods of Santo Domingo, La Isla, Potosí, Julio Rincón and Ciudadela Sucre. This particular group of respondents is the most affected by the conditions of lack of infrastructure, steep slopes and lack of proper access corridors to some houses and neighbourhoods, which make it virtually impossible to move on a wheelchair (see figure 8.5 for an example). While all citizens of Cazucá are affected by these conditions, especially during rainy seasons there is a widespread increase of barriers to mobility as most (unpaved) “roads become swamps that are impossible to cross when it rains” (F, 42, Potosí).



Figure 8.5 Access 'road' to a group of houses in Villa Mercedes

Photo: Author

These conditions translate into entire days without leaving home for people with limited capacity to walk on already uneven road surface even in dry seasons. Two interviewees argued that they do not leave home more than one or two times per month, either because the slope by the house makes it too difficult to walk, or because they cannot leave without accompanying from another member of the household. People over 55 that still travel, argue that their trips are limited both spatially and temporally, perceiving trips to Bogotá as 'too complex' and 'very long and dangerous'. This leads to 3 of 4 respondents travelling only to Soacha and within Cazucá, during morning times and avoiding evenings and times of high demand. Most common travel purposes are religious services, groceries and medical care. More senior respondents in particular prefer to use the *carritos*, as they argue that they "help when you travel with packages" (F, 61, La Isla), "are more patient and wait while you get in and out of the vehicle" (M, 64, Caracolí), and "are cheaper and sometimes let me ride for less" (F, 58, Ciudadela Sucre). Respondents also acknowledge that the vehicles are old and dangerous, and that it is a risk to ride them. However, they are largely willing to overlook some of these risks as they perceive it is their only affordable chance to move. In the words of a local leader in the neighbourhood of Potosí (M, 62, LL), "it is not the best transport, but what would we do without them?"

Only one case in the sample was of a wheelchair user, a woman of 38 years. She was interviewed along with her mother, who cares for her in their house in Julio Rincón. According to their responses, she has not left home more than twice in the past two years. This case reflects some of the most extreme conditions under which mobility is restricted to the point of social exclusion. Her travel strategies depend on support of all her family and their only trip purpose is for medical care. Local medical facilities lack the required conditions for meeting needs of disabled populations, which imposes trips to Bogotá for most medical-related situations. They use

carritos during periods of lower demand when they can make sure drivers will not be in a hurry and people are more willing to open spaces for her in the front seat. The mother argues that this would not be possible in formal buses serving the area. However, informal alternatives do not reach their required destinations, which forces them to hire a taxi in Bogotá for completing these trips. Such conditions make travel for people on a wheelchair very expensive and time-demanding for other members of the family, which leads to conditions of everyday immobility. This, added limited real and perceived inbound access to Cazucá has led to her being unable to see family and friends with any frequency and limit her and her mother's capacity to engage in other activities and opportunities.

Although the case documented in this research for a person with severe physical impairments to move independently cannot be considered representative of all people with disabilities in Cazucá, it provides relevant points of reflection regarding physical exclusion, particularly in light of the evidence from Sisbén. On the one hand, given the structural constraints related to insufficient and low quality infrastructure for pedestrian movement exemplified by figure 8.4, the built environment in Cazucá imposes requirements of physical prowess to be able to move locally that a share of the population lacks. On the other hand, these conditions also impose higher needs for social capital and support networks in order to be able to travel and access opportunities. However, even in cases where these networks of support are available, households where at least one member has a disability are more vulnerable to time poverty and additional financial, physical and psychological strain as a result of the shared burden of immobility.

8.2.5. *Fear-based exclusion – “Fear led us here, but soon after it followed”*

Insecurity and crime are common in low-income neighbourhoods in developing countries (Colak & Pearce, 2009; Arias & Goldstein, 2010). In Colombia, small-scale drug trade and consumption often take place within peripheral neighbourhoods where there is easy access to the city’s market without the levels of control of police and other institutions observable in formal neighbourhoods (Koonings & Kruijt, 2004; Jones & Rodgers, 2009). These illegal activities are closely linked to local crime, violence, and presence of local gangs and thieves exercising control over some public and private spaces within the neighbourhoods. Church, Frost, & Sullivan (2000) associate the fear dimension of social exclusion to fear of crime that prevents people from accessing certain bus stops, use specific streets or travel to certain neighbourhoods. These issues were identified in Cazucá from field observations and responses from interviews. Perceptions of insecurity affect schedules, routes and activities, being a determinant of social exclusion. However, other types of fear-motivated decisions that affect residents’ location, use of time and distribution of responsibilities in the household that ultimately lead to exclusion of some household members. In this regard, fear influences greatly how people manage their time and organise their lives.

Responses of interviewees suggest that presence of crime and violence can be generalised to be a common issue throughout Cazucá. However, this dimension of social exclusion influences differently travel strategies depending on the scale and neighbourhood analysed. On a macro scale, fear influenced location decisions of in-migrants residing in the neighbourhoods. Seven cases in the sample are migrants from rural areas arguing that they fled their land toward Bogotá because they feared violence associated with the Colombian conflict. However, these same interviewees feel they traded-off different types of fear becoming now

limited by local crime and thieves in their new neighbourhood. On a city scale, people from other areas associate Cazucá with crime, violence and poverty, leading to social stigmas and limiting willingness to travel to the area. This adds up to already low attractiveness due to lack of local amenities. Nine interviewees argued that their family and acquaintances living in other areas of Bogotá and Soacha tend to avoid visiting them at home due to fear to theft and other types of crime.

On a neighbourhood scale, people in physically less accessible neighbourhoods farther from the border with Bogotá argue that crime, violence, and drug distribution and usage is a frequent issue that limits their ability to circulate through some streets and at night. Lack of street lights and limited circulation of vehicles and people in most local roads are associated with higher risk of crime, which leads interviewees to seek wider and better-lit roads in their walking routes despite requiring longer travel times. Types of work of people in the area often involves non-conventional schedules that include very early mornings and late evenings. Night-shifts and other time-related constraints were identified as challenges for reaching employment in relation with security. People leaving in the early mornings organise in groups to walk where they can take the bus or the *carrito*, and those arriving late in the evening tend to wait at the start of local routes for neighbours returning home to travel together. This was identified as a common practice in La Isla, Villa Mercedes, and Santo Domingo. The main issue related to these practices identified by many interviewees is that they increase transport costs by imposing additional times and expense that need to be traded-off for perceptions of higher security. Table 8.3 summarises the most frequent answers in the interview related with perceptions of insecurity, associated causes, times and related travel choices.

Table 8.3 Aggregated perceptions of security by neighbourhood

Neighbourhood	Is the neighbourhood safe? (affirmative answers/sample)	Most frequent reason for insecurity in the neighbourhood	Time of the day perceived as most unsafe	Most frequent form of travel in unsafe hours in the neighbourhood
Santo Domingo	03-oct	Local gangs	Between 6pm and 5am	Walking in groups
Caracolí	01-jun	Street crime	Between 7pm and 6am	Informal
Arborizadora Alta	01-jun	Street crime	Between 6pm and 6am	Regular bus
El Tanque	04-jul	Street crime	Between 11pm and 6am	Regular bus
Julio Rincón	02-jun	Street crime	Between 9pm and 6am	Informal
La Isla	01-jul	Drug trade and consumption	Between 6pm and 5am	Walking in groups
Potosí	02-oct	Local gangs	Between 8pm and 5am	Informal
Ciudadela Sucre	03-nov	Local gangs	Between 9pm and 5am	Regular bus
Villa Mercedes	0/6	Drug trade and consumption	Between 6pm and 6am	Walking in groups

Source: Own elaboration

It is also identified that at less-safe hours the use of informal transport services is preferred over regular buses. People associates familiarity with informal operators and high occupancy as features making circulation in informal vehicles less prone to on-board assaults compared with regular buses. It was also identified that higher coverage of informal routes reduces walking distances and the associated risk of on-street theft, despite their more erratic frequencies. Groups of community watch in some of the neighbourhoods were also identified. These self-organised groups intend to provide better conditions for local circulation and mobility related to local crime and violence. It was identified that in order to respond to fear-based exclusion, community-led initiatives as informal services, travelling in groups and community watches play an important role in allowing mobility in times and spaces perceived as insecure. However, the imposition of motorised travel entails an important increase in travel expenditure, which reduces considerably willingness to circulate at those times for non-essential purposes such as leisure. In addition, it is identified that restrictions of time impact negatively on quality of life because travelling in

groups requires leaving home at specific hours and waiting in the evenings increase travel time to the neighbourhoods.

8.2.6. *Space exclusion – “They have control...”*

Space exclusion is closely related to the dimension of fear, overlapping with some of the issues identified in the previous section. The presence of criminal activities and groups in the neighbourhoods constrain considerably the availability of public spaces for circulation. Governance of transport and public spaces involves local leaders and community organisations as well as criminal groups that represent either a real or perceived threat to mobility of people. Identified routes in Chapter 7 (see Figure 7.6), allow connectivity between bus stops of routes serving Bogotá and different neighbourhoods in Cazucá. These routes are defined by informal providers and local leaders trying to reduce competition with formal services and other informal providers in the area, as well as marking differences in power and influence of different leaders. However, this generates disconnection between neighbourhoods that reduces considerably internal motorised mobility and weakens cohesion among communities.

The presence of local gangs, dangers of being mistakenly associated with rival groups operating in other neighbourhoods, and even the influence of some local leaders impose a series of invisible boundaries that restrict local mobility. This forces people to avoid moving across neighbourhoods, which involves longer distances and times for addressing needs such as medical, retail, and religious services located in specific neighbourhoods. In addition, local criminal groups also restrict in-neighbourhood mobility through violence and impose tolls to the right to circulate in certain areas. This generates transport-related social exclusion at the micro level. Neighbours of restricted public spaces are less prone to leave home unless necessary and more members of the household tend to stay home because of higher costs and risks. Strategies responding to these obstacles for access require

trade-offs involving longer travel times and risks in order to secure access. However, mobility-related strategies cannot thoroughly overcome social dynamics, governance and power relations that restrict urban spaces. In the words of a local leader of Caracolí (M, 46, LL), “you cannot fix this with transport, but if we had more police and organization in the government, we could feel safer and freer to walk in the neighbourhood”.

8.2.7. Time-based exclusion – “I cannot go out”

Time-based exclusion in the area encompasses many aspects addressed in the preceding analysis (Kenyon, Lyons, & Rafferty, 2003; Delbosc & Currie, 2011b; Lucas, 2012), which shows overlapping of some of the dimensions identified by Church, Frost, and Sullivan. (2000) as discussed in Chapter 2. Time restrictions imposed by distances, activities, power relations, crime and other social tensions influence the definition of travel strategies by different groups in the neighbourhoods, often involving longer times of displacement that limit ability of people to engage in other activities. Time burdens related to crime and violence, as well as limited ability to circulate in public spaces enlarges restrictions of access and the risk of certain groups to become socially excluded.

In particular, women, non-single parents and non-heads of household are subject not only to severe time restrictions related to transport but often to imposed activities and responsibilities in the household that reduce their access to the opportunities offered by the city. The research by Church, Frost, and Sullivan (2000) in London demonstrated that carers in social groups at risk of social exclusion are more vulnerable to experience time restrictions for mobility and participation in society. In Soacha, women and the other groups identified above of all ages not at work were found to care for their children, doing chores at home and stay in the house in order to reduce the risk of burglary. These conditions are often imposed from within the household restricting their time availability for traveling and conducting

activities outside of Cazucá. Control of activities, especially for women, was identified as a frequent issue, leading many women to stay at home most of the day during weekdays and even at weekends. Statements like “I cannot go out, I have to stay with the baby, cook and tend for the house” (F, 43, Santo Domingo), and “I don’t have anything to do in the neighbourhood and when will I go to Bogotá?” (F, 22, La Isla) are common between near-immobile women. Female interviewees argue they have many responsibilities to attend to at home, which in combination with the risks of crime and limited schedules for traveling do not allow them to access the city. However, these practices reduce considerably their ability to engage with travel choices in the neighbourhoods and the city as they are not aware of the services, routes and costs involved in traveling to Bogotá and Soacha. This has also implications in relation with available opportunities as they do not entertain the possibility at seeking employment, education or other opportunities. The inclusion of a time-based dimension in the analysis in the sense suggested by previous research, allows to identify these cases of severe time deprivation because of issues indirectly related to transport that produce some of the most severe cases of social exclusion.

8.3 Making connections between transport and social exclusion in Cazucá

The seven dimensions of exclusion outlined by Church, Frost, and Sullivan (2000), which have been explored and reinterpreted in this chapter in the context of Cazucá, show clear interrelations and a tendency to reinforce each other and intersect for groups at social disadvantage as a consequence of the transport disadvantage resulting from a fragmented provision of transport in Soacha. Although the analyses in this chapter are mainly informed by transport-related data and a qualitative instrument designed for the specific purpose of identifying different factors of exclusion linked to transport, the evidence outlined in previous chapters suggests it

is not sufficient to look at transport-related social exclusion in a vacuum. The understanding of geographic, economic and social elements that play a role in shaping disadvantages and exclusion are as relevant as the structural elements involved in the governance and planning of transport infrastructure and urban development that leads to a fragmented transport system. Such elements influence differently dimensions of social exclusion depending on the scale and timeframe in which they are analysed, which becomes a central dimension of the analysis of the concept and its interpretation in a context such as Cazucá.

In this research, Stanley's (2011b) considerations regarding social exclusion as a circular concept were also considered, trying to differentiate where possible between drivers and consequences of lack of opportunities. However, the analyses tend to decant towards a more detailed exploration of the factors, while the consequences are examined through the strategies people in Cazucá resort to for addressing such factors. This is a challenging task, which needs to be considered in future research, particularly when using qualitative evidence. As argued in Chapter 2, this also speaks to the cumulative nature of factors of exclusion and their consequences, as some strategies outlined under a specific dimension in this chapter may respond to more than one of the dimensions of social exclusion, or even trade-off alleviating one specific factor of exclusion in exchange for another (i.e. trade-offs within the household for maximising disposable income for transport for the household's income earners have as a consequence the immobility of other members of the household such as women not at work).

Finally, in relation to the relative nature of social exclusion introduced in Chapter 2, the analyses show the need for assessing the evidence from different points of reference (i.e. residents of Cazucá compared to residents in the rest of Soacha; Cazucá relative to Bogotá; and between different individuals within Cazucá). This allows to identify various degrees of exclusion that depend on the way in which different groups and individuals

experience each dimension. The evidence and its interpretation using the framework of seven dimensions outlined by , Frost, and Sullivan (2000) also reflect that although unique elements from Cazucá such as forced displacement, informality and systematic bypassing of the area by the networks of transport can contribute to conceptual debates around social exclusion. The development of the concept in the literature from industrialised nations was instrumental for identifying key drivers of social exclusion and structuring the research. This suggests the need for further research that confronts evidence in cities of the Global South with those of industrialised nations, as well as between different context of development in order to strengthen available frameworks for exploring social issues in urban transport.

This chapter constitutes one of the most relevant contributions of the thesis to academic debates. Although there is a wide body of research on transport-related social exclusion, with a considerable number of research outputs produced in the last few years on the subject (see section 2.3.2), there is little work that uses qualitative approaches. The distinctive approach of this research and the production of new information on transport-related social exclusion in a context of difficult access, complex social tensions and marked segregation and transport disadvantage, is a relevant contribution to knowledge in the area. This chapter pushes forward our knowledge of transport-related social exclusion by linking it with previously underexamined issues such as the role of informal transport in alleviating social exclusion for disadvantaged population within low-income communities. This, while testing the validity of a paradigmatic framework such as Church, Frost and Sullivan's (2000). The chapter finds the general principles of transport-related social exclusion in such framework a valid starting point for the case of Soacha, developing further relevant sub-categories for each dimension building on the empirical work. This is a relevant conceptual framework which can then be expanded with

mainstream survey and accessibility analysis. The added depth of the qualitative work can be utilised for producing an additional layer of categorization in order to identify additional variables that can be represented in a quantitative instrument and confronted with mathematical models to support generalisations at a large scale. Finally, the chapter's contribution cannot be assessed in isolation from the rest of the thesis as it is integrated with the analysis of splintering urbanism. The thesis as a whole confronts these two frameworks leading to complementary findings and insights for theory, research, and practice. The following chapter builds on these insights and analyses as well as those in the previous chapters, to present the main conclusions of the thesis.

9. Conclusions: Peripheries, splintering urbanism and governance, and social exclusion in urban transport in the Global South

The genesis of this research is largely empirical. My experience of being confronted directly with the reality of a case such as Cazucá was the first and probably most powerful indication of the level of invisibility and segregation that the poor are subject to in the peripheries of large Latin American metropolises such as Bogotá. This was also a strong motivation to explore such conditions in depth, in the framework of urban transport development and planning.

The thesis is then a deconstruction of some of the most relevant conditions at different spheres that frame observable levels of cumulative dispossession, social and spatial segregation in a complex urban fabric in relation to transport and mobility. Transport and social disadvantage, and social exclusion related to transport in the Bogotá-Soacha conurbation, and specifically in Cazucá, are central elements in the analysis of such conditions. This research is also an attempt to increase the visibility of Soacha and Cazucá as largely forgotten research settings in an otherwise rich academic literature about Bogotá and Colombia in transport studies and urban research. Moreover, it is an effort to showcase the relevance of the analysis of planning, governance and ‘the social dimension’ of transport and their interrelations in the study of urban transport in cities of Latin America and other urban areas of the Global South.

The thesis was structured around exploring inequities and inequalities (see Chapter 1) at different scales and their influence on availability of resources for travel and other conditions for participation in society, which might contribute to the exclusion of individuals and social groups as part of

processes of development of networks of transport and connectivity. The thesis set out to respond to two central questions:

1. How is splintering urbanism related to transport localised in relation to peripheral populations in the Bogotá-Soacha conurbation between 2000 and 2013?

The examination of the structure of the Bogotá-Soacha conurbation and the larger context was presented throughout the thesis, particularly in Chapters 3 to 7. First, there is a wide economic and population gap between Bogotá and the rest of the country, with the city concentrating the largest share of the national GDP compared to other cities and provinces and the largest urban population in the country. This puts Soacha not only at a disadvantage in terms of attractiveness, but also in a position that makes it a convenient location for people wishing to access the opportunities in Bogotá. This is combined with large availability of land in Soacha and lax controls for urbanisation, which opened the door for informal development of (mostly self-help) housing in the peripheries of the municipality.

Rapid population increase in Soacha, as shown in Chapter 3, can be linked to both natural growth of the population, in-migration from other parts of the country both in search for economic opportunities and forced displacement, and in-migration from people in Bogotá searching for affordable housing while maintaining access to the city. As shown in Chapter 7, most of the lower income in-migrants were attracted to Cazucá, partly as a result of 'pirate' developers that illegally sold and distributed the land in the area for people wanting to build their houses there. This took place in a context in which the local government did not have the capacity to control informal land occupation and development in Cazucá and where national,

provincial and local regulations restricted the influence of other authorities (such as the government of Bogotá) to influence the processes of informal urbanisation that were taking place in Soacha as discussed in Chapters 5 and 6. Between 2000 and 2013, Cazucá saw a very fast consolidation of informal housing while the transport network connecting the area with the rest of Soacha and Bogotá remained largely unchanged. The analysis of governance in Soacha for 2013 reflected clear institutional weaknesses in the capacity of municipal authorities to govern.

Practices of patronage and lack of coordination and communication, combined with insufficient financial and human resources for planning and an unequal distribution of investments throughout the municipality as shown in Chapters 6 and 7 are clear handicaps for the appropriate inclusion of Cazucá in the urban and transport development plans of the municipality, which added to the lack of legitimacy and representation in urban governance, and the informal nature of many of its neighbourhoods, have prevented Cazucá's integration to the urban and transport systems in Soacha. Despite lack of sufficient and adequate infrastructure, as shown in Chapters 6 and 7, people continue living and settling in Cazucá, particularly the poorest, which leads to cumulative deprivation and the concentration of a large number of people at social disadvantage.

The splintering urbanism thesis of Graham and Marvin (2001) suggests that processes of development of infrastructure are influenced by power and wealth and that while the elites are increasingly improving their living conditions in well-connected premium spaces, those areas without sufficient power and influence are bypassed in the processes of urban and infrastructure development. The combination of the conditions outlined earlier suggests that Cazucá is one of the bypassed nodes in urban

transport networks. Improvements in connectivity in Cazucá were mostly the result of larger infrastructure investments at the national level and the interest of Bogotá of connecting better with the labour force in Soacha. However, between 2000 and 2013, no project had addressed explicitly the needs for connectivity in Cazucá. The network resulting from such patterns of development, planning and governance is a clearly splintered one as shown in Chapter 7. Roads are insufficient and of low quality and most road links were built before the occupation of Cazucá for purposes such as industry and mining, which make them unsuitable for urban mobility. In addition, these limited connections have not been improved in the period of study, limiting the available supply of public transport, spaces for safe pedestrian and cycling circulation and integration with the rest of the transport system in the Bogotá-Soacha conurbation. Furthermore, regulatory and institutional constraints do not allow for the operation of public transport services that connect Cazucá seamlessly with Bogotá and Soacha, increasing travel costs associated with accessing most opportunities. Although this fragmentation is partially addressed through informal mechanisms, these are insufficient in both scale and quality for the multiplicity of needs for mobility in the area, thus reinforcing the conditions of geographic and social peripherality of Cazucá and adding to already severe cycles of spatial and social segregation.

2. How is transport-related social exclusion experienced and addressed by residents of Cazucá in 2013?

The concept of social exclusion related to transport has been the object of much recent research in transport studies, urban planning and urban geography. Chapters 2 and 8 discuss different approaches to the understanding of social exclusion, which, as argued by Stanley (2011b), tend to refer to different 'dimensions' of

the concept. I selected the framework proposed by Church, Frost and Sullivan (2000) in their study of transport-related social exclusion in London. The literature suggests this was not only one of the most prominent studies on the subject, but also later studies seem to have accepted this study's definitions and interpretations, making it a useful and tested conceptual foundation for the analysis of empirical evidence in Cazucá. As the question I intended to respond to was how is social exclusion experienced and addressed, I chose to apply such conceptual framework to the analysis of primary qualitative evidence in the form of semi-structured interviews which, given the strong theoretical foundations of the framework, fit well with qualitative content analysis.

As discussed in Chapters 2 and 8, the concept of social exclusion is multidimensional, multi-scalar, relative and cumulative. The empirical evidence in Cazucá shows that the experience of social exclusion is, on a first instance, relative to individuals experiencing different factors of social disadvantage, to the role of the person in the household, to power relations at different scales, and to the availability of structural conditions for connectivity and social support. However, some general characteristics that shape the experience and capacity to address social exclusion can be identified. On the one hand, the socioeconomic evidence shown in Chapters 3, 6, 7 and 8 shows that most people in Cazucá are in multidimensional poverty, about 2% have a declared disability, and the majority are in-migrants. On the other hand, there is a generalised perception of the area as insecure, riddled with crime and unattractive for travel from other parts of the Bogotá-Soacha conurbation and the physical connectivity in relation to networks of transport and other urban services is fragmented and insufficient, as argued earlier. These general conditions place the majority of the

population of Cazucá at a disadvantaged position for experiencing social exclusion, being vulnerable in relation to dimensions such as the economic, geographical, facilities and fear, as argued in Chapter 8. These dimensions, which are collectively experienced, lead to collective strategies⁵⁷ such as development of informal transport routes, joining together in walking towards nodes of transport and using public transport together at insecure times and areas, community watch groups, and informal transactions around public transport (both formal and informal) such as bargaining fares.

However, specific characteristics of individuals and social groups also influence both the experience and strategies for addressing dimensions of social exclusion. The issue of power relations within the households, neighbourhoods and communities is one of the strongest differentiators in this regard. The mobility of those considered more essential in households such as income-earners and heads of household tend to be placed before the mobility of others in the household even leading to some becoming immobile. These, combined with social conventions and traditional beliefs lead to an unequal distribution of responsibilities in the household, leading to time deprivation for travel and participation in society of specific household members (see section 8.2.7). In addition, power relations regarding public spaces and the definition of invisible boundaries that restrict circulation also play a role in the experience of social exclusion and the definition of strategies for mobility. Local leaders and criminal groups exert their power in different spaces, systematically excluding some residents depending on where they

⁵⁷ By this I am referring to strategies that involved collective organisation but also those impromptu practices that involve groups of people that form sporadically under specific conditions, as well as socially-accepted practices in the area.

live, who they support and who they may or may not know and even influencing the availability of transport services (see Chapter 7 and section 8.6.2). People with physical disabilities and impairments for moving on their own also experienced more severe levels of exclusion and immobility which, depending on their social capital and networks of support, can also affect the experience of exclusion of their family, friends and carers (see section 8.2.4).

The analysis of the experience of and strategies for addressing dimensions of transport-related social exclusion suggests that it does not necessarily entail total deprivation from access to opportunities and interactions. However, it can involve considerable risks of falling into severe disconnection from modern urban society considering the conditions of social and economic vulnerability in cases such as Cazucá. The intersection of dimensions of transport-related social exclusion with other circumstances of social and transport disadvantage leads to further detriment in the ability of people in poverty and other conditions of social disadvantage to actively participate in society. Transport-related social exclusion involves not only elements of transport supply and demand, but also of social norms, governance and regulation underpinning the interactions between them (Lucas, 2011). According to the analysed evidence, and the analysis of governance and splintering urbanism that preceded results showcased in Chapter 8, such interactions become determinant in the experiences and strategies that individuals and social groups in Cazucá develop in relation to social exclusion and the increase of risks of becoming socially excluded through the accumulation of one or more of the dimensions identified in this research.

The following sections develop further these findings, showing other conclusions in relation to research and practice, splintering urbanism and transport-related social exclusion.

9.1 On learnings for research and practice

As a civil engineer, my approach to the *technical* study of transport dynamics and practices was largely circumscribed to the collection and analysis of large quantitative datasets, often without being familiar with the context where the information was obtained. Traditional methods of transport engineering produce a marked distance between researchers and practitioners and the realities that frame transport development and the generation of strategies of mobility by different social groups and individuals. This contributes to the consolidation of self-reinforcing cycles of top-down design of tools for collecting and analysing information based on transport planning and research techniques rooted in economic and utilitarian theories and methods, which in turn lead to decision-making processes mostly driven by principles of economic growth and efficiency, such as those described on Chapter 2.

Traditional methods focus more on the scale of collection of standardised data than on the depth needed to production and analyse more individualised information under the assumption that measurable travel patterns are a sufficient proxy for mobility needs. Quantitative approaches can lead to a general understanding of travel patterns and trends at the macro level and can inform decisions that respond to principles of utility maximisation for the average user and continuous increase in travel speed and capacity. However, constraints in relation to sample sizes and limited focus on specific social groups and identities lead traditional approaches to overlook differentiated needs by social identities defined at the multiple intersections of age, gender, ethnicity, religion, and income, among other

characteristics, leading to a transport planning targeted for and shaped by averages.

Traditional transport planning can and has indeed increased accessibility in cities and improved travel conditions for a large share of the urban population, due in part to increasing interest by local and national governments in the Global South, as well as support from international donors and development agencies on transport investments. However, these developments have had a limited 'trickle down' effect, not always reaching populations who are at social and economic disadvantage. This research recognises that not everyone is in the same social position to take advantage of the accessibility benefits opened up by motorised mass-transport, nor has mainstream transport planning been able to reach all social groups in different urban societies.

Soacha and Cazucá provide an unexplored, yet common set of conditions for the analysis of the interrelations between transport planning, informal development and social exclusion in peripheral areas of large cities of Latin-America. Researching such a case entails practical as well as conceptual challenges in the development of urban and transport research. Thus, the research holds empirical, theoretical as well as methodological lessons. Some of these are individual learnings and others address larger academic and practitioner circles in transport studies and planning both in Colombia and overseas. All, however, intend to contribute to discussions and approaches surrounding the social consequences of urban transport, arguably providing a critique to the traditional approaches to their study in the Global South.

The widespread policy dominance of conventional transport planning and its implications in terms of the integration of peripheral areas and social groups living in urban peripheries with the rest of urban society suggest the need for more involvement of urban transport researchers and practitioners

in the field. This applies not only to low income and segregated neighbourhoods, but also to the city as a whole, in order to better-understand the role of the intersectionality of class, gender, age, ethnicity, race, religion, sexuality in shaping travel behaviour, travel demand, and differentiated needs of mobility throughout cities and metropolitan areas.

Qualitative research in Soacha points at the need for such an involvement to also transcend traditional interactions with the local population beyond the type *surveyor-surveyed* frequently found in mainstream data collection for transport planning, encouraging a broader and deeper dialogue between transport professionals, decision-makers, and the population directly affected by transport policy and development. This is arguably a much larger, expensive and time-consuming process, which may face resistance in practice in the context of social and political pressure to expedite decision making, investment and development. However, the much-deeper understanding of the perspectives and practices of the poor and the potential for developing more tailored policies and interventions that can address the multiple dimensions of their mobilities, or lack thereof, according to people's own priorities and needs, can serve as justification for the additional investment and effort.

This is one of the main reasons for selecting a qualitative approach as opposed to alternative methods such as quantitative accessibility analysis, survey analysis for transport disadvantage, or analysis of travel diaries. On the one hand, accessibility analysis tends to concentrate on aggregated effects and dynamics, generalising at different scales, from zoning to categorisation of individuals and households, similarly to survey analysis. In the case of travel diaries, although information is more detailed at the individual levels, they have the limitation of reflecting only actual practices, putting aside relevant issues to the decision-making processes involved in the development of these practices such as perceptions, fears and expectations. The adoption of these approaches would have not led to a

study reflecting the general experiences of social exclusion rather than the granularity of an analysis built around specific dimensions and their interactions with social identities and positions. It would have also been better-fit into my comfort zone as researcher, defeating one of the purposes of the thesis of testing the applicability of qualitative methods in transport studies.

The framework applied in the thesis aims at making a contribution to current approaches to transport-related social exclusion, disadvantage, and poverty, and the methodology selected responds to the need for integrating the frameworks of splintering urbanism and social exclusion. As explained in chapter 4, this is an inductive rather than the deductive process, where the general principles of each framework are confronted with the evidence in order to reconstruct their translation into the local context. This approach allows the research to tailor data collection and analysis techniques and instruments to respond to such general principles without constraining the evidence to specific values and types of response. The analysis of secondary information for understanding splintering urbanism in Soacha was deemed appropriate for the stage of the research on which it was implemented, as it became a precondition for understanding the specificities of transport disadvantage and poverty and placing social exclusion as a consequence of the interaction between planning approaches, social tensions, power relations and governance at a larger scale, which informed directly fieldwork information about governance, planning, and institutional inequalities between Bogotá and Soacha. This can be summarized as a top-down approach where available evidence is confronted with the framework, which is later strengthened by primary evidence from interviews with key stakeholders. An alternative to this would have been to implement a more inductive approach such as grounded theory or inductive content analysis to read on the local interpretations of planning processes, fragmentations in infrastructure and transport delivery,

spatial segregation, and localised poverty to then question various theoretical frameworks from the urban and transport literature. Such an approach could have changed the development of the rest of the research and its findings, very much leading to a whole different project and final result. However, it would have also required a much wider understanding and familiarity with the planning literature as well as other social theories and methods beyond my background as an engineer and the timeframe for the research. The structure of the thesis and the selection of frameworks and methods respond to an overarching goal of testing knowledge and methods from disciplines other than mainstream transport planning and engineering by a researcher strongly influenced by a background on such mainstream approaches, and opening the scope of how do we approach social inequalities from transport studies and planning.

The development of such a research in Soacha and Cazucá intended to explore the value of more engaging research methods in the analysis of the social consequences of transport development in an urban environment marked by spatial and social segregation. In particular, considering the framing context of high informality in all levels of urban development and practices and the complex social dynamics that mark the area, such as forced displacement and poverty, it is necessary for transport researchers and practitioners to interact more closely with local communities. This includes not only direct users of transport, but also those who play different roles in the local communities and those who, for different reasons, may be immobile or at risk of becoming socially excluded. In this regard, one of the most relevant methodological lessons from this research is the need for involvement of local community leaders, non-governmental organisations, local providers of transport (including informal ones) and non-transport institutions in enabling access to local communities. The role of these *gatekeepers* is essential not only in identifying contacts and potential respondents for information gathering, but also in establishing a closer

relation between researchers and the local population. The participation of local leaders and institutions with legitimacy in the communities contributes to the acceptability and legitimacy of the research itself. However, such an involvement requires an honest and responsible approach, especially in relation to a visible sector like urban transport. One of the first findings of the empirical research is that people question the usefulness of yet another questionnaire in their daily lives as, partly due to conditions of social vulnerability, crime and poverty, countless research on different disciplines are frequently carried out in these areas, often without a tangible effect. Moreover, people in segregated neighbourhoods hold expectations of State intervention for addressing long overlooked needs such as infrastructure development, access to water and sanitation, and provision of other essential urban functions and services. In this regard, it is important not only to clearly communicate the scale and scope of the research, but also to enable access to research information and findings to the local communities and institutions. Development research can contribute to empower local people, leaders and institutions to advocate for better policies and make use of new information to influence decision making in order to help improve their conditions. There is a responsibility of researchers to facilitate as much as possible the use of the information and insights of academic studies by participants and their communities as some of the primary beneficiaries of research on urban transport.

This research also holds lessons regarding the value of interdisciplinary work in the study of transport. Insights and contributions from research assistants from the social sciences helped informing the research in relation to the complex relations of power at the individual, household, community and larger scales that can govern interactions, choices and even attitudes of interviewees towards certain issues and questions. Awareness of these structural conditions contributes to build better-informed research protocols and analysis of information. Transport research and planning in urban

Colombia is often perceived as the responsibility largely of engineers, though also urban planners and economists, which limits the scope for the involvement of social scientists and social workers. This produces a narrow understanding of the different elements influencing travel choice and the role of transport as part of a complex system that involves social and power relations that take place in households, communities and public spaces beyond the influence of infrastructure and transport services.

9.2 On splintering urbanism and development

The exploration of mobility strategies responding to transport disadvantage and other social and economic constraints in Cazucá intended to contribute to recent theoretical and conceptual debates regarding social exclusion related to transport in urban contexts. The selected case study, data sources and approach to the analysis sought to add elements to a debate that is only now permeating the Latin American context (Keeling, 2013).

Building on secondary information, the research reflected on the causes and consequences of transport-related segregation and marginalization in the urban fringes. The work set out to build a better-informed analysis of transport supply and policy development practices for poor peripheral populations in similar regions and contexts. In light of the theoretical discussion, the case study confirms a degree of applicability of Graham and Marvin's (2001) splintering urbanism thesis to the analysis of transport infrastructure and services in cities with similar dynamics to the ones observed in Bogotá-Soacha. The most useful elements in the analysis of the case study are related to the interpretation of networks as a socio-technical construct shaped by the power and influence of different groups in society.

Urban governance in Colombia, and the particular set of rules defined for Bogotá places Soacha in a peripheral position in relation to the capital city. Bogotá has more autonomy in decision making and investment, while it is

also constrained to intervene outside of its administrative boundaries due to the inexistence of a metropolitan authority. This creates an imbalanced relationship with Soacha. On the one hand, the population in the municipality is largely dependent on Bogotá for accessing different opportunities. On the other, Soacha has limited financial autonomy and faces institutional and governance weaknesses that constrain its ability to plan and implement development initiatives in the medium and long term. These conditions have influenced the development of the transport system in the municipality towards placing connectivity with Bogotá at the centre of planning decisions. However, despite investments in the South Highway, better connectivity with Soacha has not been a priority for Bogotá. Similar dynamics are evident at the local level in the interaction between Cazucá and the rest of Soacha.

The characteristics of Cazucá suggest segregation beyond the spatial interpretation. The limited access of its inhabitants to an adequately built environment shows low social investment and lack of consideration in official development plans. In spite of the informal nature of most of the settlements, the relational position with respect to the social and economic structure of Bogotá and Soacha, both seen as independent entities or as part of the same urban space, shows a functional relationship that needs to be well thought-out from both sides of the border. Moreover, these conditions reinforce the insufficient availability of mechanisms to Cazucá households to access opportunities in the region, being also subject to social exclusion as a result of economic, spatial and social reasons linked to the place where they live. The difference between power and resources and the lack of integrated planning in the conurbation has cumulative effects on the segregation of Cazucá in the region.

In this case power relations take place at two scales. At the regional level, despite functional integration the relationship Bogotá-Soacha limits the generation of strong networks of connectivity between the two

municipalities. The presence of a nationally relevant road connecting the two cities has defined to a great extent the way in which Soacha has developed, but also the areas where most of the resources in the municipality for infrastructure and transport development are used. At the local scale, the position of Cazucá in both spatial, social and political terms makes this neighbourhood a case of bypassed node in the processes of provision of transport networks. Lack of influence and political representation of the high number of internally displaced people and low-income residents in this area have influenced availability of transport infrastructure and services in the neighbourhoods of Cazucá. This ultimately limits local residents to access opportunities required to overcome their conditions of poverty.

Another element that can be drawn from splintering urbanism is the fragmentation of connectivity networks in bypassed nodes within social structures. In contrast to premium spaces, which have been extensively discussed in the literature, the case study shows levels of disconnection that lead to higher travel expenditure and highly constrained accessibility, which can increase the risks of become socially excluded. The evidence shows the consequences of a limited provision of networks of physical connectivity. The lack of public-sector investment during the study period is reflected not only in the physical deterioration of the infrastructure network in Cazucá but also in poor capacity for vehicle circulation. Transport infrastructure plays a central role in underpinning social development and helping to reduce inequalities. Limited interventions in these vulnerable areas have the effect of creating barriers to the flows of demand to the social system of Soacha and the city-region that it forms with Bogotá, which contrasts with better infrastructure and services in Bogotá and areas of Soacha closer to the main highway.

The splintering urbanism thesis appears to be corroborated in the specific case of the complex system Bogotá-Soacha-Cazucá. This is useful in

helping structure an analysis of the processes involved in transport networks serving to less powerful groups in society, its causes, and consequences. While it does not constitute a formal research approach to a specific case study or even the analysis of a given sector, Graham and Marvin's argumentation provides useful hints about the main elements that might play a role in the generation of spatial inequalities related to transport. One of the main contributions of this type of analysis of transport networks is the development of a more comprehensive assessment of these dynamics beyond either technical or political approaches. By incorporating a spatial dimension within a sectorial policy analysis the framework facilitates the identification of inequalities in planning and prioritisation of public investments. This provides a better-informed critique of what is often seen as a mainly technical issue such as the design of the provision of transport services and infrastructure.

9.3 On transport and social exclusion in peripheral urban areas

The deconstruction of the observed dynamics in the dimensions of social exclusion selected for the research, limited as they might be, proved on a first instance the relevance of detailed analyses in cases of severe deprivation frequently found in the Global South. Previous research on this subject often involved spatially and contextually different cases in order to show the diversity of the dimensions of transport-related social exclusion and the empirical contrasts involved in its research. In this regard, availability of socially, spatially and culturally similar observations in an environment of challenging geographies and governance contributes to a clearer understanding of these dynamics. Cazucá provides sufficient empirical grounds to support the usage of a multidimensional approach to in-detail analyses of populations in apparent conditions of social exclusion.

A particular consideration in relation to the findings of the research regarding the relationships between transport and social exclusion is that the framework proposed by Church, Frost and Sullivan (2000), as well as other conceptual contributions to discussions on social exclusion come from a European, more specifically British, background. In this context it becomes relevant to recognise the limitations of the framework as it was originally proposed and the need for re-interpreting the meaning of the different dimensions considered in the local context. As argued in Chapter 8, there is an increasing interest in the development of social exclusion research in developing countries following similar frameworks to the one used in this work. This suggests that the social exclusion theory has had a somewhat unexpected echo in research on developing countries, which may also lead to more socially-informed practice in these contexts. The 'dimensions' approach is a potentially attractive method for engaging with a complex set of issues such as social exclusion in transport, paralleling what has happened with the concept of poverty where there has been a recent shift from economic interpretations of poverty to the inclusion of additional aspects related to assets and livelihoods. This framework can not only be justified to provide additional elements for empowering qualitative research in policy-related forums in cities of the Global South, but it also speaks to disciplines such as engineering and economics that employ structured frameworks and specific indicators for the deconstruction of complex problems. The framework adds value in the sense that it allows one to unpack what could often become a difficult concept to define. The selection of the framework also bridges the technical understanding of travel dynamics and choices with the nature of qualitative work. One of the most important advantages of the framework is that it allowed me to manage the scale of the fieldwork despite large diversity in the sample and the variable conditions in different neighbourhoods within the case study, which helped to identify and analyse differentiated mobility needs. The social exclusion framework and the use of content analysis

techniques allowed for an efficient use of the information collected. The profiling embedded in content analysis is very helpful once a specific dimension of social exclusion has been identified. The results presented in Chapter 8 intend to reflect the highlights of the information obtained and the different dynamics of social exclusion. Further research can build on this information to identify additional dimensions and sub-dimensions using an inductive approach in order to corroborate and potentially complement findings of this research.

The approach to strategies in contrast to the dimensions of social exclusions allows a natural deconstruction and reconstruction of different mechanisms increasing access of perceivably segregated communities. The recognition of the role of community-led transport initiatives, rules and interactions showed the need for a thorough understanding of the social values and costs that these, often stigmatised, mechanisms can involve. However, the analyses also echo the clear limitations of poor communities and informality for addressing the multidimensionality of social exclusion, and the need for structures of support in social, spatial and cultural realities that impose additional restrictions beyond the realm of transport.

Travel strategies of low-income populations subject to limited travel choice, institutional and geographical dislocation involve trade-offs between costs, time, comfort and security. These trade-offs lead people to sacrifice essential resources and time to respond to specific dimensions of transport-related social exclusion. In the same vein, social exclusion was found to be neither a static nor a discrete process. It relates to time, power and space, affecting differently people in similar conditions and involving changing levels of exclusion. Mainstream transport agendas recognise women, children, the elderly and disabled individuals as vulnerable populations in relation to social exclusion and transport disadvantage, although their involvement and targeting in public policies in practice, particularly in a context like Soacha, is very limited. In addition, these vulnerabilities may

affect directly and indirectly the mobility of close members of the households of such individuals, increasing levels of exclusion of entire social units. Further exploration of the implications of these relations and ‘transferences’ of risks of exclusion to less-vulnerable members of a household in challenging contexts for accessibility merits further exploration.

Interviewees using alternative modes of mobility are able to increase their accessibility, comfort and safety relying on both informal supply and transactions for accessing transport and opportunities. Cazucá reflects the role of informal transport in filling gaps open by inadequate transport provision and insufficiency of local facilities. Despite clear risks and costs related to poor quality of vehicles, low levels of service and high risk of road accidents, different features of informality with positive effects in relation to transport-related social exclusion can be identified. A holistic interpretation of access is fundamental in this regard. Most identified mechanisms for mobility allow ‘access from’ segregated communities. However, ‘access to’ is also essential for individuals bound to conditions of limited or null mobility, and yet this seems to be failing even in informal transport services. Lack of attractiveness and observable security, safety and comfort that appeal to non-residents are shortcomings of informal transport that help consolidate segregation of already marginal communities in relation to other social groups in the city-region.

Informality shows adaptability to the challenges of terrain and social tensions, and complementarity of services between informal routes and formal services. These not only palliate some of the most immediate challenges for accessibility but also allow for complementarity of connectivities related to different spatial needs of the population. Similarly, transport informality in the case study reflects flexibility in economic and social aspects of the relation between demand and supply. Flexibility of pricing schemes that reduce economic costs of motorised mobility, highly

personalized relationships between service-providers and clients, and schemes of operation and economy rooted on local structures and community life embeds informal supply and transactions into the definition of accessibility from the area of study. Finally, innovation in the modification of the set of rules for accessing public transport, and tailored responses to preferences and priorities of people in low-income areas through unwritten social norms and codes of behaviour, allow informal transport to fulfil a determinant social function in helping vulnerable users to overcome some dimensions of social exclusion. This suggests a potential area for development of further research concerned with social implications of transport dynamics in relation to poverty, opening room for questions in relation to policy targeting poor communities and the need for dialogue between formality and informality in the provision of inclusive transport.

While identified strategies do not thoroughly address the studied dimensions of social exclusion in low-income areas, they reflect the ingenuity and adaptability of vulnerable populations to challenging conditions for accessibility. Higher flexibility and comfort as well as lower costs of operation of informal transport are not negligible factors, particularly given the stringent limitations faced by low-income households. Further exploration of these dynamics may contribute to tailoring better existing policies for provision of transport to segregated areas, impacting positively on the quality of life and access to opportunities for the urban peripheral poor. However, holistic approaches are necessary, and only when tackling each dimension in its cultural, social, spatial and physical aspects will social exclusion be truly overcome.

This research is but a modest step in exploring the dynamic relationship between transport and social exclusion in peripheral and segregated contexts in cities and metropolitan areas of the Global South. Qualitative research has produced relevant findings in relation to the links between transport and social exclusion in a context such as Soacha and Cazucá.

There is an implicit challenge in all development research to inform debates, decisions and policies, and to provide insights that can lead to a more just development. In this regard, future research ought to look at alternative approaches and mechanisms to research social exclusion and other social consequences of urban transport in the Global South and to scale-up the findings and methods of this research for their implementation in broader planning and practice circles and the empowerment of people in Cazucá. Further work is needed in order to help consolidate social research in transport as part of common practice in developing countries and the inclusion of social concerns in mainstream transport planning, assessment and evaluation in urban contexts.

9.4 On the original contribution of the research

The thesis contributes to theoretical bodies addressing the links between form and transport networks and social and physical marginalisation in cities of the Global South. The thesis makes three distinctive contributions to current knowledge on transport planning and studies. First, it makes a proposition on the links between fragmentation of urban networks of infrastructure and services for transport and the potential social exclusion of people in low income informal settlements in the urban hinterland. The thesis adopts Western approaches to urban fragmentation and transport related social exclusion to explore these dynamics, testing their applicability in contexts of strong physical marginalization of socially disadvantaged populations emerging for historical imbalances in the structures of governance, planning and physical infrastructure in the Global South. This is done by proposing a framework that builds on the splintering urbanism thesis proposed by Graham and Marvin (2001), and the framework for understanding transport-related social exclusion proposed by Church, Frost and Sullivan (2000). The use of these frameworks is not frequent in the academic literature related to transport in the global South as shown in chapters 2 and 7. Furthermore, the combination of the two theories as part

of an integrated analysis of the social consequences of urban fragmentation is one of the specific contributions of the thesis to contemporary debates regarding the links between the differentiated delivery of transport infrastructure and services underpinned by Western approaches to transport planning and its implications for social development and inequality in cities in the Global South. The thesis differentiates some of the main drivers of splintering urbanism providing a localised interpretation of the theory and giving more weight to issues of governance and their role in planning and delivery as shown in chapter 6. Second, the thesis provides evidence from a difficult context where constraints related to the topography, geographies, lack of transport provision, poverty, and social tensions limit accessibility for the residents and challenges development of primary research. As argued in this chapter, the thesis provides learnings for transport researchers and planners in relation to access and production of information exploring multiple dimensions of transport-related social exclusion in similar contexts. The thesis also provides arguments for the validity of qualitative work in the analysis of social dynamics related to transport and mobility, and shows evidence of the need for multi-disciplinary frameworks for transport studies. Third, the thesis finds relevant connections between practices of differentiated provision of transport networks and informal mechanisms to resist social exclusion. The research's unique combination of theoretical framework for transport-related social exclusion and qualitative content analysis of in/depth interview data, allows to identify the high relevance of informal transport in participation in society of disadvantaged groups such as the elderly and people with disabilities residing in already marginalised urban areas. The framework and evidence produced by this research allows to de-construct structural drivers involved in the production and experiences of social exclusion and reflects on the notion of informality as a flexible and adaptable practice of resistance from selective marginalisation and disconnection.

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Appendices

Appendix A

Table A-1 List of interviewees

Sex	Age	Category	Institution/ Neighbourhood	Key	Sampling method	Format	Recording	Transcript (Y/N)	Confidentiality requested (Y/N)*
Male	69	Academic	Universidad de los Andes	M, 69, A	Direct contact	Open-ended	Audio recording and concurrent notes	N	N
Male	46	Academic	Universidad de los Andes	M, 46, A	Direct contact	Open-ended	Audio recording and concurrent notes	N	N
Male	48	Academic	EMBARQ	M, 48, A	Direct contact	Open-ended	Audio recording and concurrent notes	N	N
Female	36	Academic	Universidad del Rosario	F, 36, A	Direct contact	Open-ended	Audio recording and concurrent notes	N	N
Female	38	Academic	Universidad del Rosario	F, 38, A	Direct contact	Open-ended	Audio recording and concurrent notes	N	N
Male	32	Civil servant	General Secretariat	M, 32, CS, MA	Referred by academic	Open-ended	Notes	N	N
Male	26	Civil servant	Infrastructure and Land value Secretariat	M, 26, CS, MA	Referred by academic	Open-ended	Notes	N	N
Male	34	Civil servant	Transport Secretariat	M, 34, CS, MA	Referred by academic	Open-ended	Notes	N	N
Male	33	Private contractor	Infrastructure and Land value Secretariat	M, 33, PC, MA	Referred by local leader	Open-ended	Notes	N	N
Female	29	Private contractor	Transport Secretariat	F, 29, PC, MA	Direct contact	Open-ended	Notes	N	Y
Female	28	Civil servant	Planning and Land-use Secretariat	F, 28; CS, MA	Direct contact	Open-ended	Notes	N	N
Female	41	Civil servant	Finance Secretariat	F, 41, CS, MA	Direct contact	Open-ended	Notes	N	Y
Female	44	Civil servant	Government Secretariat	F, 44, CS, MA	Direct contact	Open-ended	Notes	N	N
Male	39	Civil servant	Social Development and Community Participation Secretariat	M, 39, CS, MA	Referred by local leader	Open-ended	Notes	N	N
Male	58	Civil servant	Municipal council	M, 58, CS, MA	Direct contact	Open-ended	Notes	N	Y
Female	47	Civil servant	Municipal council	M, 47, CS, MA	Direct contact	Open-ended	Notes	N	Y
Male	64	Local leader	Ciudadela Sucre	M, 64, LL	Referred by academic	Semi-structured/open-ended	Audio recording and concurrent notes	Y	N

Male	46	Local leader	Santo Domingo	M, 46, LL	Referred by NGO	Semi-structured/open-ended	Concurrent and supplementary notes	N	Y
Female	58	Local leader	La Isla	F, 58, LL	Referred by local leader	Semi-structured/open-ended	Audio recording and concurrent notes	Y	N
Female	54	Local leader	Villa Mercedes	F, 54, LL	Referred by local leader	Semi-structured/open-ended	Audio recording and concurrent notes	Y	N
Male	62	Local leader	Potosí	M, 62, LL	Referred by NGO	Semi-structured/open-ended	Audio recording and concurrent notes	Y	N
Male	46	Local leader	Caracolí	M, 46, LL	Referred by local leader	Semi-structured/open-ended	Audio recording and concurrent notes	Y	N
Female	28	Resident	Bella Vista	F, 28, Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	52	Resident	Bella Vista	F,52,Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	33	Resident	Bella Vista	F,33,Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	41	Resident	Bella Vista	F,41,Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	50	Resident	Bella Vista	F,50,Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	70	Resident	Bella Vista	F,70,Bella Vista	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	28	Resident	Bella Vista	F,28,Bella Vista	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Male	21	Resident	Caracolí	M,21,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	64	Resident	Caracolí	M,64,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	58	Resident	Caracolí	M,58,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	35	Resident	Caracolí	M,35,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	64	Resident	Caracolí	F,64,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	24	Resident	Caracolí	M,24,Caracolí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	35	Resident	Ciudadela Sucre	F,35,Ciudadela Sucre	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Female	58	Resident	Ciudadela Sucre	F,58,Ciudadela Sucre	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	15	Resident	Ciudadela Sucre	M,15,Ciudadela Sucre	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	16	Resident	Ciudadela Sucre	M,16,Ciudadela Sucre	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	21	Resident	Ciudadela Sucre (Los Robles)	M,21,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	50	Resident	Ciudadela Sucre (Los Robles)	M,50,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N

Male	41	Resident	Ciudadela Sucre (Los Robles)	M,41,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	46	Resident	Ciudadela Sucre (Los Robles)	M,46,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	58	Resident	Ciudadela Sucre (Los Robles)	M,58,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	60	Resident	Ciudadela Sucre (Los Robles)	M,60,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Male	21	Resident	Ciudadela Sucre (Los Robles)	M,21,Ciudadela Sucre (Los Robles)	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Female	22	Resident	El Oasis	F,22,El Oasis	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	23	Resident	El Oasis	M,23,El Oasis	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	19	Resident	El Oasis	M,19,El Oasis	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	24	Resident	El Oasis (Arborizadora alta)	M,24,El Oasis (Arborizadora alta)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	48	Resident	El Oasis (Arborizadora alta)	M,48,El Oasis (Arborizadora alta)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	23	Resident	El Oasis (Arborizadora alta)	F,23,El Oasis (Arborizadora alta)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	55	Resident	Julio Rincón	F,55,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	24	Resident	Julio Rincón	F,24,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	38	Resident	Julio Rincón	F,38,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	32	Resident	Julio Rincón	M,32,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	21	Resident	Julio Rincón	M,21,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	41	Resident	Julio Rincón	M,41,Julio Rincón	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	33	Resident	La Isla	M,33,La Isla	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Female	53	Resident	La Isla	F,53,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	61	Resident	La Isla	F,61,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	22	Resident	La Isla	F,22,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	33	Resident	La Isla	M,33,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N

Female	53	Resident	La Isla	F,53,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	36	Resident	La Isla	F,36,La Isla	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	21	Resident	Potosí	M,21,Potosí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	42	Resident	Potosí	F,42,Potosí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	20	Resident	Potosí	F,20,Potosí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	35	Resident	Potosí	F,35,Potosí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	26	Resident	Potosí	F,26,Potosí	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Female	43	Resident	Potosí	F,43,Potosí	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	23	Resident	Potosí (El tanque)	F,23,Potosí (El tanque)	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Male	31	Resident	Potosí (El tanque)	M,31,Potosí (El tanque)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	40	Resident	Potosí (El tanque)	F,40,Potosí (El tanque)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	71	Resident	Potosí (El tanque)	M,71,Potosí (El tanque)	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	32	Resident	Santo Domingo	M,32,Santo Domingo	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	43	Resident	Santo Domingo	F,43,Santo Domingo	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	27	Resident	Santo Domingo	F,27,Santo Domingo	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	32	Resident	Santo Domingo	M,32,Santo Domingo	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	19	Resident	Santo Domingo	M,19,Santo Domingo	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	19	Resident	Villa Mercedes	M,19,Villa Mercedes	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	24	Resident	Villa Mercedes	F,24,Villa Mercedes	Sampling frame	Semi-structured	Concurrent and supplementary notes	N	Y
Male	39	Resident	Villa Mercedes	M,39,Villa Mercedes	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	25	Resident	Villa Mercedes	M,25,Villa Mercedes	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Male	48	Resident	Villa Mercedes	M,48,Villa Mercedes	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N
Female	22	Resident	Villa Mercedes	F,22,Villa Mercedes	Sampling frame	Semi-structured	Audio recording and concurrent notes	Y	N

Source: Own elaboration

Appendix B

B -1 Topics for open-ended interviews to civil servants, academics and local leaders

Table B-1 List of interview topics for residents

Area	Main topics
Spatialities	Position of Soacha in the region Distribution of opportunities in space Identification of neighbourhoods and areas of concern and reasons for concern Perceived advantages and disadvantages of location of Soacha Priorities and needs for connectivity with the rest of the region
Structure of the organisation	Characteristics of the staff and selection processes Distribution of roles and responsibilities Levels and distribution of investments Relevant areas for coordination Advantages and challenges for communication and coordination Relationship with the Mayor's office and central municipal government Relationship with the municipal council Perceived institutional strengths and weaknesses Identification of inter-departmental responsibilities and activities
Financing	Sources of revenue for operation Levels of expenditure Challenges for sustainable financing Financial challenges for operation Positioning of organisation in municipal budgeting priorities
Main issues in the municipality	Main social concerns of the local administration Main initiatives related to the organisation Perceptions of actors that have a role in the delivery of the functions of your organisation Relationships with other institutions in the government (regional, national) Infrastructure-related challenges of the municipality Transport-related challenges of the municipality
Representation and participation	Existing instances for participation and representation Relationship of your organisation with the citizens, community organisations, civil society organisations Identification and influence of local interest groups into your functions and that of your organisation Identified obstacles for participation and representation Perception of Cazucá: issues, challenges and opportunities Perception of social inclusion Perception of municipal, public and private community strategies for securing access and mobility

Source: Own elaboration

B -2 Topics for semi-structured interviews to residents

Table B-2 List of interview topics for residents

Area	Main topics
Spatialities	Location in relation to centres of employment Relevant places in the municipality and in the city of Bogotá Satisfaction with location Perceived advantages and disadvantages of location Interpretation of own accessibility to self-identified opportunities throughout the region
Household characteristics	Composition of the household Distribution of roles and responsibilities Income and its distribution Type of opportunities/facilities that are relevant for the household Social and family relations Distribution of time on daily and occasional activities Socioeconomic characteristics of household members Migration history of the household
Built environment	Type of housing and tenancy Urban amenities Quality of the (built and natural) environment in the neighbourhood Characteristics of the streets Conditions for local access
Social dynamics	Availability of social aid Power relations in the neighbourhood and the municipality Identifiable groups and organisations with presence in the neighbourhood Perceptions of community life and cohesion Perception of social position in the region Relationships with the state and other households
Transport and mobility	Travel practices to reach self-identified opportunities and destinations Perception of relevance of transport in daily life Relevance of transport in household dynamics Identified obstacles for mobility Perception of transport supply Perception of regional accessibility Individual and community strategies for securing access and mobility

Source: Own elaboration

B - 3 Interview Schedule – Semi-structured interviews with residents

Section 1: About the interviewee

Interview code

1. Gender: M / F
2. Age:
 - 2.1. Do you have an identification document? What type?
 - A. Identity card
 - B. Identity card
 - C. Civil registration
 - D. Other _____
 - E. Does not have
3. Where were you born? _____
4. Who is the head of household?
 - 4.1. If the head of household is different from the respondent, what does the head of the household do?
5. Relationship to head of household?
 - A. Head
 - B. Spouse or partner (a)
 - C. Children
 - D. Parents
 - E. Another relationship, what?
 - F. Unrelated, Relationship?
6. What was the last level of study reached?
 - A. Full primary
 - B. Incomplete primary
 - C. Completed secondary
 - D. Incomplete secondary
 - E. Technician or Technologist
 - F. College
 - G. Postgraduate
 - H. None
7. Where did you study? Is it a public or private institution? Where is the institution located?
8. What was your activity in the last month?
 - A. Without activity
 - B. Working
 - C. Seeking employment
 - D. Studying
 - E. Household chores
 - F. Rentier
 - G. Retired, pensioner
 - H. Disabled
- 8.1. If you answered (b) to question 8:
 - Where do you currently work?
 - Do you work independently or for a firm?
 - If you work independently, what activity do you do?

- *If you work for a firm, what does the the firm do?*
 - *Do you have a valid contract? Do you know what kind?*
 - *How often do you receive an income? How much?*
 - *How did you get this job?*
 - *Why do you do this particular activity?*
 - *Did you have difficulties finding a job? What?*
 - *Have you had difficulties before for getting a job? What?*
 - *Is it important for you where the firm is located when looking for a job? Why?*
 - *Are you satisfied with the area where your job is located?*
 - *Do you have any preference, neighbourhood or area where you would like to work at? Where?*
- 8.2. *If you answered (c) to question 5:*
- *How long have you been looking for work?*
 - *What are the main difficulties encountered in finding work?*
 - *Is it important for you the location of the company when you seek employment?*
- 8.3. *If you answered between (d) and (h) to question 5:*
- *Do you receive any income?*
 - *How often do you receive it?*
 - *Why do you receive this income?*
9. *Do you do any other activity that gives you any income? What activity?*
10. *Do you do any additional activity? What?*
11. *Do you have Sisbén? Y/N*
- 11.1. *In case you have Sisbén, do know your score?*
- 11.2. *Do you know at what level of Sisbén are you at?*
12. *Are you affiliated to any type of health service? Which?*
13. *Are you enrolled in a program of government such as Families in Action? Which?*
14. *How did you get enrolled in this program?*

Section 2: About the household

1. *How many people are part of the household?*
2. *Who are the people who are part of the household?*
3. *How many people bring money home?*
4. *Type of housing (house, apartment, casalote, etc)?*
5. *Socioeconomic strata:*
 - A. 1
 - B. 2
 - C. 3
 - D. 4
 - E. 5
 - F. 6
 - G. No stratum
6. *The house you live in is:*
 - A. Rented
 - B. Owned, fully paid
 - C. Owned, paying

D. Another condition What?

6.1. If you answered (a) to question 6:

- How long have you lived in the neighbourhood?*
- Where did you live before?*
- How much do you pay for rent?*
- What is your relationship with your landlord?*
- Why did you decide to live in this neighbourhood?*
- Who pays the rent of the home?*
- Have you considered changing neighbourhood?*
- Are there other areas of the municipality or Bogotá where you want to live? Why?*

6.2. If you answered (b) to question 6:

- How long have you lived in the neighbourhood?*
- Where did you live before?*
- How long ago did you finish paying your home?*
- What is the approximate price of your home?*
- Who paid for the house?*
- How did you pay for your house (fees, bartered, cash, etc.)?*
- What was the approximate value of the monthly instalments?*
- Do you have ownership document? What type?*
- Why did you decide to buy in the neighbourhood?*
- Did you have improved or built additions to your home?*
- At this moment are you making any improvements or extension to the house?*
- How did you come to buy your house in this neighbourhood?*
- Have you considered selling the house?*
- Do you have tenants? How long ago?*
- Have you considered changing place of residence?*
- Are there other areas of the municipality or Bogotá where you would prefer to live? Why?*

6.3. If you answered (c) Question 6:

- How long have you lived in the neighborhood?*
- Where did you live before?*
- How long have you been paying your home?*
- What is the approximate price of your home?*
- Who pays for the house?*
- How did you pay for your home (fees, bartered, cash, etc.)?*
- Do you know what is the approximate value of the monthly instalments of your home?*
- If you pay your home in different periods, could you tell me how often you make payments? How much do you pay?*
- Do you have ownership document? What type?*
- Why did you decide to buy in the neighbourhood?*
- Have you invested in expanding your home?*
- At this moment, are making any investment in the house?*
- How was the process of buying the house?*
- Have you considered selling the house?*
- Do you have tenants? How long?*

- *Have you considered changing place of residence?*
 - *Would you like to live elsewhere? Where? Why?*
- 6.4. *If you answered (d) to question 6:*
- *How long have you lived in the neighbourhood?*
 - *Where did you live before?*
 - *How you live in this house (borrowed, care for it, etc.)?*
 - *Do you pay for your housing? To whom and how?*
 - *How much do you pay?*
 - *Why did you decide to live in the neighbourhood?*
 - *Have you considered changing place of residence?*
 - *Are there other areas of the municipality or Bogotá where you want to live? Why?*

Section 3: About the neighbourhood

1. *How is this neighbourhood? Can you please describe it?*
2. *What do you consider the main advantages of the neighbourhood?*
3. *What would say are the three most serious problems in the neighbourhood? Why?*
4. *What is the legal status of the neighbourhood?*
5. *Do you know if the neighbourhood is in the process of legalization? What part of this process?*
6. *I have seen some business on the way here, what can you get in this neighbourhood?*
7. *Are you a customer of local businesses? For what?*
8. *If you had the opportunity to change your place of residency what the neighbourhood would like to live at?*
9. *How is the relationship between the neighbours?*
10. *How is your relationship with the nearby neighbourhoods of Bogotá?*
11. *Do you think that you or your family depend on Bogotá? For what?*
12. *Do you think the things you get in Bogotá could you get them in Soacha? Why?*
13. *I would like you to tell me a little about how the development of the neighbourhood has been since you live here: how has it been populated, who has developed it, the way that problems have appeared or disappeared since you began living here.*

Section 4: about infrastructure and services

1. *Do you have access to public utilities? Which?*
2. *Does everyone in the neighbourhood have access to these services?*
3. *How do you perceive the state of access roads to the neighbourhood?*
4. *Do you think roads are sufficient for the mobility of residents of the neighbourhood?*
5. *When was the last time repairs were made on roads in the neighbourhood?*
6. *When was the last time new roads were built in the neighbourhood?*
7. *Public transport routes pass through the neighbourhood?*
8. *Where do you take the route nearest public transport? Do you know where the main stops of the commune are?*

9. What are the nearest public transport routes and where do they go?
10. How easy is access to the centre of Soacha? How long does it take?
11. How easy is access to Bogotá? How long does it take?
12. Are there enough transport options to move?
13. What other transport services operated in the neighbourhood or close to it (Example: Bicitaxis, private taxis, etc)?
14. What is the form of transport used by people in the neighbourhood?
15. Is there adequate lighting in the streets?
16. Is there sewerage in the streets?
17. What do you think are the main transport infrastructure needs or in the neighbourhood?
18. Do you consider that local government (municipal mayor, Community Action Board) has addressed these priorities?
19. Does the Mayor, the JAL, or some other institutions have a presence in the neighbourhood? What do they do?
20. Have there been any initiatives of people in the neighbourhood or other institutions to address infrastructure needs and transport?
21. Do you know of any infrastructure project that is being conducted in the neighbourhood?
22. Are you aware of any transport project being implemented in the district or municipality?
23. Do you think the current projects will benefit the neighbourhood? Why?
24. What do you think is the influence of transport on the current problems in the neighbourhood? Do you think there are more pressing needs than transport?

Section 5: About mobility and opportunities

1. How many trips do you normally do on a weekday?
2. What do you make these trips for?
3. What time do you usually make your first trip of the day?
4. What is the reason for this trip?
5. Tell me about the first trip of the day: What do you pay for it? What means of transport do you use? How long does it take?
6. What would you say is the mode of transportation you use the most?
7. How long so you have to walk to take the first means of transport used in the day?
8. Usually How long do you have to wait to take the first means of transport used in the day?
9. How much money is spent on transport to work? Please consider the trips back and forth. How many days do you work?
10. What is the reason you have to go out more often from home and use transport?
How much money is spent on that trip? In time? What district / area of the municipality do you travel to?
11. Of the trips made on weekdays which one takes longer? How do you do it?
12. Where do you go on your longest journey? What do you make this trip for? How much do you have to pay on this trip for transport?
13. Of the trips made on weekdays which one do you think is the most expensive? How much does it cost? How often is it done?

14. Where do you go on your most expensive trip? What do you make this trip for?
15. Where do you walk in the neighbourhood when you have to travel to Bogotá before you take a bus or other vehicle? Why do you take that route?
16. Tell me about the route that you take in the neighbourhood when you have to travel to Soacha: Do you use any vehicle? Where do you walk? Why do you take that route?
17. What do you consider the three major transport problems in the neighbourhood?
18. What are the main difficulties to move around?
19. Do you have any preference for areas of Bogotá and Soacha you would like to travel to? Why?
20. Can move within the neighbourhood at any time? Why?
21. What do you think about the cost of public transport?
22. What do you think are the problems of public transport in the city in general?

For users of public transport and Transmilenio:

- 22.1. Are there times when you cannot use public transport? Why?
- 22.2. Can you negotiate the fare of public transport when you use it? How much do you pay?
- 22.3. If the cost of public transport were lower would you use it more? Would you make the same amount of trips a week you make now? What new journeys would you make?
- 22.4. How much should the cost of public transport decrease for you to use it more often?
- 22.5. What other changes would be needed in public transport for you to use more?

For people who do most of their trips on foot:

- 22.6. What are your reasons for not using public transport?
- 22.7. If the passage of public transport was cheaper use it? How many trips would make public transport a week? For what?
- 22.8. How much should lower would the cost of public transportation have to be for you to use it?
- 22.9. What other changes would be needed in public transport for you to use it more?
23. Can you go to any area of Soacha and Bogotá? According to your perception, do you feel or believe that there are areas of Soacha or Bogotá you cannot go to? Why?
24. Are there areas of Bogotá or Soacha you are not interested in going to? Why?
25. Where do you go when you need to go to the doctor? What means of transport do you use to go to that place?
26. Where do you go for shopping? What means of transport do you use to go to that place?
27. Where do you go in your spare time? What means of transport do you use to go to that place?
28. What is the most important factor when you select a mode of transport?
29. What is the most important factor when selecting how to travel to work?

Section 6: Priorities in the household

We talked about your household expenses and how do you move, I'd like to discuss how these expenses are handled at home.

- 1. Approximately what it is the monthly household income?*
 - a. 0-535600*
 - b. 535,601 to 1,200,000*
 - c. 1200001 - 2000000*
 - d. Over 2000000*
 - e. Unresponsive*
- 2. What costs does your family regularly incur into per month (Example: groceries, rent, services, etc.)?*
- 3. Which of these would you say are the three priorities of household expenditure?*
- 4. how much do you pay for utilities each month?*
- 5. How much of the household income is spent each month?*
- 6. How important is spending on transport for the whole family within household expenses?*
- 7. How important is spending on transport for persons working within the household expenses?*
- 8. Would you be willing to live somewhere else in order to reduce transport costs? Why?*
- 9. Would you be willing to use other transport alternatives to devote more money to other household expenses? To which? Why?*
- 10. Have you ever been forced to reduce transport costs to pay for other things? What?*
- 11. Have you stopped paying something at home to pay for transport? In what situation? What have you not paid for?*
- 12. Which of the former two situations is more common?*
- 13. Do you consider any of the household expenses is too high? Which? Why?*
- 14. In a hypothetical case, if you had the opportunity to choose between lowering costs of transport or lower the cost of any other household expenses, which would you reduce? Why?*
- 15. Do you believe that transport requires to sacrifice other needs (e.g in terms of health, in the activities you can do, opportunities to which you have access, etc.)?*
- 16. Is there anything else you would like to add regarding your mobility?*

B - 4 Sample Interview and basic colour coding

Date: March 16, 2013

Interviewee: Male, 52

Neighbourhood: Caracolí

Geographical	
Economic	
From facilities	
Physical	
Fear-based	
Spatial	
Time-based	

He works as an independent builder

D: What activity do you do?

J: I work as a Builder in the neighbourhoods around

D: Is there a contract?

J: No, my partner that I help him with is the contract

D: What do you have to do?

J: Do whatever, stick block, pañetar, now for example, we are putting together a plate, an iron, a base. I usually rotate between different works, here a lot is built.

D: How did you get that job?

J: Through the partner who gets his job and says 'let's do this, help me do this'. I'm moving around the neighbourhood, that's a subject because there are areas where you cannot walk.

D: Why cannot you walk?

J: Uh, first because there is nowhere to, there is no sidewalk or at least one paved road. But also by drug addicts and thieves, they get into the alleys to consume vice and if they see a 'giving papaya' steal it. It is dangerous if one goes alone.

D: How do you think it affects you not being able to walk around the neighbourhood?

J: Well, one loses opportunities, there are jobs that are taken away by others who work like me because I could not get there in time because I have to divert myself from where the drug addicts are and I waste time. If you are not at the time you need the boss, you can get someone else. And so, you need the money. It is also difficult sometimes to visit the family. My mom lives down here, but when it rains it's impossible to cross to get there. But the most serious thing is to secure the journal.

D: Do you mean daily income?

J: Yes, of course.

D: How often do you get paid?

J: That usually pays for days, here it does not work otherwise because you do not have a contract, just the commitment to the person.

D: How much do you receive?

J: Sometimes 30, 25, it depends on whom you work one here and if you do not ask my Petrona's comadre

D: Yes, she told me. Why do that specific activity?

J: Because I have nothing else to do and since my age does not give me for more

D: Did you have difficulty getting that job?

J: **Not because of help among peers** ... the companion knows that it is necessary to make a house there then he tells me

D: Have you had difficulties before getting a job?

J: Many, sometimes I have not been accepted for being black. Once I went and did a course of surveillance, I was going to work in surveillance and for being black they did not accept me. Again I was rejected because I live in Cazucá, people see one and believe that one is a thief or bad people and that's why they do not give him work.

D: And why did not they accept you?

J: A lady said 'no, I do not work with blacks', from there I never returned to look for surveillance. Again I presented a resume where I put my address and just the secretary saw her said thank you, you can go now. When I worked outside the neighbourhood, I had to put the address of a friend who lives in Bogotá for people to look at my resume.

D: Is it important to you where your workplace is located?

J: Of course, because I get transportation here because I do not pay for transport here, I do not get up early, so a lot of advantage

D: Do you have any neighbourhood or area preference where you would like to work?

J: Well here in the Barrio or in Soacha, going to Bogotá is very complicated from here. You have to walk a lot or pay several round trips. It is not justified, you end up almost everything you earn in the day.

D: Do you do any additional work?

J: No, because since one makes one, I'm already old and it is not easy to move around in the city. In addition people no longer hire as employees the old people, under construction only want young people

D: Do you have access to any subsidy or social assistance system?

J: Yes, for being displaced by violence. When I came here I went and I declared and I was favored

ABOUT THE HOUSEHOLD: 6 people

D: Who are the people?

J: I, my lady, my three children and the grandson

D: Are the children underage?

J: They are already of age

D: How many people contribute money at home?

J: Well, the children when they are working contribute, when they are not working, then they do not.

D: Do you contribute?

J: Yes

D: Your wife?

J: Yes

D: How long have you lived in the neighbourhood?

J: About 10 years

D: Where did you live before?

J: In Fontibon

D: Why did you come?

J: Because there was very expensive the rent and here where they brought me was cheaper

D: How much do you pay for rent?

J: 180

D: What is the relationship with the landlord?

J: Friends

D: Why decided to rent in the neighbourhood and not elsewhere

J: Because the owner of his house lived there and he was the one who brought me to live there

D: And how did he know you?

J: Because when I was displaced, one of my cousins who used lived in the neighbourhood introduced us

D: Who pays the rent?

J: The one who has it [the money]: if he has the woman she pays, if I have, I pay.

D: Let's say last month who paid for it?

J: Well, she did

D: Have you considered changing your neighbourhood?

J: Recently yes

D: Why?

J: Because I'm going to go apply for an apartment in La Victoria [southern Bogotá] that the government is planning to give to displaced people

D: Are there other areas of the municipality or of Bogotá where you would like to live?

J: No, well ... where I do not pay a rent, I would live, yes

NEIGHBORHOOD

D: How would you describe this neighbourhood?

J: For me it has been a good neighbourhood, because you see that he who does not mess with one, does not mess with one, who does not mess with anyone, nobody messes with him. If you search you will find. So, to me, well, because I've never had problems with anyone, everybody knows me, they are all kind to me. But the problem is outside the neighbourhood. There are leaders who do not like one, or who have problems with the leader here and they make a bad environment to one, it feels like uncomfortable and sometimes it can even be dangerous.

D: Why dangerous?

J: Because people are grouped and then if you are alone they make you have a bad time.

D: What do you consider to be the main advantages of this neighbourhood?

J: First of all, it is cheap, here for one to go and buy clothes or groceries does not need to go downtown, but there to Tres Esquinas, the Tank [referring to the border with Bogotá], here is everything.

D: What will you say are the three most serious problems of Caracolí?

J: First of all, the garbage dump, the people keep the trash a lot, people here are not aware that the garbage truck is passing today and the guy who passed the car, right there they take out the trash and expel it there on the other side

D: How often does the garbage truck pass?

J: Three times a week

D: What would be the other problem?

J: The transportation, is deficient.

D: Why?

J: One goes to the centre and one stops there and wait, wait. That is very complicated. It is expensive. In addition sometimes in the evenings they rob you on the bus.

D: What would be the third?

J: That the hours of the night cannot leave one because there is no shortage of thieves lurking to catch one and take their things away. It has happened to me, they have already taken money, the cell phone

D: I've seen some business, what can you get?

J: Clothes you need, shoes you need, hairdresser you need, fix your nails, everything! Makeup. For other bigger things if you go down to Soacha or Bogotá. Appliances, if one wants to do something different like going to the movies and do something different the you have to go outside of the neighbourhood.

D: Are you a client of those businesses?

J: When I need things I usually get them from there

D: If you had the possibility to change my place of residence, what would you look for in the new location?

J: No, I'm going to leave here when I go to my own house that the government will give me.

D: Well and what characteristics are important that a neighbourhood has?

J: Everything you need, transportation, trade.

D: Does Caracolí have transportation?

J: Yes, but very deficient, because it is the one that comes from El Lago. From there only come small buses or shared cars. The good thing is that there are some boys from the cars that are from the neighbourhood and as they know one or the lady then they wait or sometimes even give discount on the price.

D: How is the relationship between neighbours?

J: Very good, no one here bothers. There are some boys from the neighbourhood who have been getting into the gang story. They walk in bad company and that hurts the tranquillity of the neighbourhood.

D: How has the development of Caracolí been since it first came so far?

J: Has progressed fast

D: Why?

J: Because when I got there, that had no light, no sewer, no gas and Caracolí already has all the services, the only thing missing is the services and transportation.

D: How do you perceive access to the access roads to Caracolí?

J: Well, one comes from Ciudad Bolívar and the other comes from the Tank and they are good, they are all paved, from Tres Esquinas [where Soacha starts] to here it is that the pavement is missing.

D: Do you think the roads are sufficient for the mobility of the residents or are they missing?

J: Well, we need more, but where would they be? There's no space!!

D: When was the last time repairs were made on the neighbourhood roads?

J: The paved years ago. The uncovered if they have never done anything to them, they keep passing the cars and it keeps getting worse. When it rains it is impossible!

D: When was the last time new roads were built in the neighbourhood?

J: Never

D: What are the transportation routes that pass through Caracolí?

J: The Transandina

D: How easy is it for you to access Soacha?

J: Easy, there is transport for going downtown [Soacha]

D: How long does it take?

J: 15.20 min

D: How easy is it to access Bogotá?

J: Well, I usually don't go. When I do, it is not easy

D: And how much does it take?

J: It depends on the hour and the congestion. Say you go on a Saturday, 1 hour, if you go to work in the morning it can be 2 or more.

D: You usually what are you going to Bogotá for?

J: To walk around and see other stuff. Or to go to the doctor

D: And when you're going, how long does it take you from here to there?

J: Around 3 hours to come and go

D: Do you consider that there are enough options in Caracolí to move?

J: No, very little

D: For which sites do you consider routes to be necessary?

J: For example, from here does not leave route by the Boyacá, by the 30 [main roads in Bogotá].

D: In Caracolí also the carritos?

J: Yes, they are from Tres Esquinas to the Island.

D: What do you think are the main needs of Caracolí?

J: Surfacing the roads and put pavements for walking

D: What do you think are the main infrastructure needs in the neighbourhood?

There is almost the same problem everywhere, because there is also lack of paving, there is also a lack of drainage for the collection of rainwater.

D: Do you consider that the JAC or the local City Hall of Ciudad Bolivar has taken care of these needs?

J: Well, I think it's they who are doing that sewerage system

D: Would you say that more works are being done in Bogotá than in these areas of Soacha?

J: Yes

D: And why?

J: Because Bogotá is Bogotá and here is a municipality and then there is more entry [economic Bogotá]

D: Do you know of any type of project being carried out in the neighbourhood? Ah! Well, the sewer, do you think this project will benefit the neighbourhood?

J: Of course, because the houses are valued a lot, everything is already valued a lot

D: Are not you worried that the value of the rent increases, for example, the value of the rent?

J: I do not worry, he does not see that when he is valued, I am in mine [apartment that the government will give him] there, that it is my turn to visit my friends, but hey.

MOBILITY AND OPPORTUNITIES

D: What do you usually go to Bogotá for?

J: To see family, to the doctor, to have fun, to the dentist, to buy things when there is some money.

D: How many times a week or so?

J: Well there are times I do not go out, just like today. I usually don't leave the neighbourhood more than once or twice a week.

D: For example when you go to Fontibon, what time do you need for this trip?

J: In the morning, around 10am, I'll be back around 9pm

D: And why are you going to Fontibon?

J: Because I have cousins there

D: How much do you pay to go from here to Fontibon in transport?

J: From here to Fontibón I have to take two buses, touch one from here to there 1500 to the junction, there I take the other 1500, there are 3 thousand and from there to another 3 thousand, there are 6 thousand

D: How long does it take from here to Fontibon?

J: About three hours, that one goes and sleeps on that bus

D: When do you have to go to Mosquera?

J: When I visit my little sister

D: And how much do you have to pay for transportation?

J: From here to Fontibón are 3 thousand, from there I catch another and there I charge another 1200, imagine, I get as at 8 thousand pesos the trip, that's why I'm almost gone

D: How long should you walk to wait for the first bus when going to Fontibon? Where does the first bus take you?

J: In Tres Esquinas

D: And how long does it take to walk there?

J: Around 15 min I walk fast

D: How long should you wait to take the first bus?

J: Sometimes it's a good one and it's coming out

D: And if not?

J: And if it's not up to you to wait 15 minutes, 20 minutes until it fills up

D: Do you have any type of transportation of your own?

J: My feet

D: On what occasions have you been forced to travel on foot?

J: Anyway here it is always walking, but to the city centre, if you do not have cash, it is better to sit still

D: What are your main difficulties in mobilizing?

J: Transport, because I have no money

D: That usually happens?

J: Sure.

D: Can you move within Caracolí at any time?

J: Sure.

D: Do you have any preference for areas of Bogotá or Soacha that you like to travel?

J: No, I hardly leave the neighbourhood.

D: What do you think about the cost of public transportation?

J: Well you know that one of the ways you can do with the government anyway, you have to submit to what the government does because they are the ones that put the fare up and down

D: But it seems expensive, cheap?

J: Well, whatever happens to you, if it's expensive, it's up to you, if it's cheap, it's up to you

D: What do you think are the main public transport problems in the city in general?

J: The congestion, that sometimes one is standing in those packed buses and that is tight. There are a few buses and the price only goes up.

D: Can you travel to any area of Soacha or Bogotá without any problem?

J: No. Like I said before there are places where you cannot get into these neighbourhoods. There are problems with insecurity and with you-know-who [referring to paramilitary groups].

D: Do you feel that there are areas in Soacha or Bogotá that you cannot go to?

J: Well, it's very difficult up north. I would have to take Transmilenio and it is very expensive. I would say that in Bogotá it is easy to move up to downtown. Even there are places in the north where you do not have to go, those areas of the rich look ugly at you, as if you owe something.

D: Are there zones of Soacha or Bogotá where you do not want to move?

J: To the north.

D: Where do you go when you should go to the doctor?

J: In the centre of Bogotá for the hospital and serious things. For the routine sometimes I go here to Vista Beautiful that is in the monument, I walk there.

D: How many long do you have to walk?

J: Like 15 or 20 minutes

D: Where do you go when you should shop?

J: Tres Esquinas, in December we go to walk goes the centre, but it is waste of time

D: Where do you go for leisure?

J: Here, the only thing that I enjoy is here with them, we go for a beer and each one has one drink and from there to the house.

PRIORITIES WITHIN THE HOME:

D: What expenses does your family have each month?

J: Rent, services, around there about 300 thousand

D: What are the three priorities of household spending?

J: Rent, water, electricity

D: What do you spend the most on?

J: In utilities and food

D: How important is spending on transportation within household expenses?

J: For me it is not very important because as I travel little and only when I need, when not, I stay here.

D: How important is spending on transportation for the people working inside the home?

J: To them, yes, when they are working out of neighbourhood, yes [it is important]

D: Have you been forced to reduce transportation costs to spend more money on other household expenses?

J: Well, in transportation, yes. The one who works, has to have it anyway because if they do not go a day to work, they discount it. It's up to you to get it whatever it is.

D: Have you stopped paying anything at home for paying transportation?

J: Of course, because the bills have a fixed deadline. For example, gas is paid on the 17, 18 and the gas is cut and I know that we don't have for the lady or the children to go to work, then we leave to pay for the gas some other time

D: Do you think the transport has made you make other sacrifices?

J: To lend money from friends, and then lose those friendships